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THE PROBLEM OF STUTTERING

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THE PROBLEM OF STUTTERING

A DIAGNOSIS AND A PLAN OF TREATMENT

BY

JOHN MADISON FLETCHER, PH.D.

PROFESSOR OF PSYCHOLOGY, TULANE UNIVERSITY

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FLETCHER

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PREFACE

This book has been written as an embodiment of conclusions reached after experimentation, study, and clinical experience which have been distributed over a period of some twenty years in several university laboratories, clinics and hospitals. Out of these efforts has come by degrees the conviction, which is shared by many others, that the present systems of dealing with the problem of stuttering are failing, and that the methods employed are wholly inadequate and in important particulars scientifically objectionable. This book represents an attempt to offer certain explanations of the apparent failure of present methods, together with a new and, it is hoped, a more psychologically sound method of approach to this very old problem.

The new method proposed is in no sense a commercial scheme. Rather is it intended to help to get the stutterer out of the hands of those who, without any scientific qualifications for their task, are willing to profit by his misfortune, knowing that there is little likelihood of their being able

to offer permanent relief. The author has never made a penny at the expense of a stutterer. On the contrary, his investigations in this field have been made at considerable financial and professional cost. His hope is that the opinions of those who may chance to disagree with him will be as free from economic and professional bias as he knows his own to be.

It was not intended to offer this as a hand-book of speech exercises for the treatment of stuttering. Instead, it offers what seem to the author to be cogent reasons for the conviction that all such exercises are to be condemned, and that hand-books that suggest or recommend their use are objectionable.

The book is intended to be of scientific as well as of practical worth. It is assumed that all persons who are interested in questions concerning mental development, all teachers, educators, administrative officials, public health authorities, clinical psychiatrists, pediatricians and psychologists, not to say anything of the parents, friends and relatives of stuttering children and the stutterers themselves, if adult, will welcome a different sort of handling of this important and perplexing problem of childhood. But in addition to the purely practical ends to be served, one of the purposes of writing the book will have been achieved if through it the subject of stuttering

shall be lifted out from among the psychological trifles and accorded the scientific attention which it, as a mental phenomenon, deserves. Only by this means can the crude and costly guessing be made to cease.

While dealing primarily with the single problem of stuttering the book will, it is hoped, be found to have important bearings upon the question of mental hygiene as a whole, especially in its preventive aspects. Emphasis is laid on the fact that what may crop out in one child as stuttering may crop out in another as a different, though nevertheless serious, sort of neurosis.

The appreciation of the author must be expressed to Dr. W. S. Leathers of the Vanderbilt Medical School, to Professor Knight Dunlap of Johns Hopkins University, Professor Joseph Jastrow of the University of Wisconsin, Professor H. H. Goddard of Ohio State University, Professors Joseph Peterson and S. C. Garrison of Peabody College, who have read the manuscript. My special thanks are due to Professor Harvey Carr and Dr. Margaret Miller of the University of Chicago, who have offered many valuable suggestions.

John M. Fletcher

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THE PROBLEM OF STUTTERING

THE PROBLEM OF STUTTERING

CHAPTER I

INTRODUCTION

"Come, I will show thee an affliction unnumbered among the world's sorrows,
Yet real and wearisome and constant, embittering the cup of life."

Stuttering Long Familiar to Science. Nothing more distinctly characterizes the best in our modern civilizations than the things which science has been able to accomplish in the amelioration of human suffering. Feats of healing, which in former ages would have been counted miracles, have ceased to excite our wonder. Yet there is today among us an affliction, numbering its victims by the thousand, the existence of which has been known since the events recorded in the Egyptian hieroglyphics, in the relief of which very little if any progress has been made. Centuries of acquaintance with this affliction and centuries of neg-

lect of its victims seem almost to have instilled into our minds a fatalistic attitude toward it. Social conscience on the question is yet to be created. People who have had no immediate contact with it, either through personal experience or through relationship to others who are afflicted, can scarcely be interested in the subject, no matter what may be their philanthropic leanings toward other forms of human distress.

Unwitting Cruelties Still Perpetrated on Stuttering Pupils. In some instances the popular attitude does not stop at mere indifference, but goes to the extent of brutality. As a sample of such brutality, born, we are sure, of lack of acquaintance with the malady, witness the following statement from Clarence Bratton, teacher of English:[1] "I know of the pleas made for the nervous, the unsteady, the slow, the stutterers—I know it's a terrible infliction to make stutterers speak, especially terrible to listeners. On the other hand, a great many lazy adolescents can be cured of chronic nervousness by a shock administered by some hard-hearted, strict teacher, who believes no more in coddling some youngsters than truthful physicians believe in pampering overcareful invalids. The few pathological cases need no more be considered by us than are the physically unfit

[1] "The New Emphasis of Oral English," *The English Journal*, 1917, p. 463.

when gymnastic courses are introduced into school."

This policy is so obviously self-condemnatory that it scarcely needs comment. It illustrates, however, by actual example, the prevailing incompetence to deal with this question with ordinary human consideration, to say nothing of professional discrimination. It is this same sort of policy that was pursued in dealing with the mentally diseased, the feeble-minded and other types of human variants prior to the introduction, through science, of more enlightened methods. To put stuttering, hypochondriasis, and laziness in the same category, to be dealt with by the same method of disciplinary shock, betrays a lack of understanding of the stutterer's case that is serious. If stuttering pupils could only receive the amount of consideration which is given the "physically unfit" when gymnastic courses are being planned, there would not be the present grounds for the claims of injustice in their case. But, if we imagine the physically unfit, the crippled, the blind, the deaf, the cardiac cases, etc., all to be forced into the same classes with normal children we have a picture of the policy which this writer (Bratton) proposes in the case of stutterers. His policy, so far as treating all alike is concerned, is, moreover, unfortunately, in use almost everywhere.

The head of the Public Speaking department of a western university related to the writer a similar story in the history of a young man who, against the heavy handicap of stuttering, had reached the sophomore year in a pre-medical course. It was his purpose in medicine to specialize in lines that would enable him to devote his life to the relief of those who were afflicted in the same way as he. The professor in charge of a required sophomore biology course was of the type apparently commended by Mr. Bratton as being so well able to deal with cases of stuttering; he was snappy, exacting, and critical. He had a way of taking it for granted that the lack of prompt and fluent answers from his students indicated lack of knowledge. This uncompromising authority at the lecturer's desk, and the classroom situation as a whole were more than the stuttering boy could successfully combat. He was accordingly driven from the university a discouraged failure, though he had the capacity for professional success, and at the same time the moral purposes of a public benefactor.

If we were scientific or humane in this matter, it would be in order to say to all such teachers: "This young man is capable of learning your subject, and is willing to do the necessary work. He has, therefore, the right to the privileges of the course. It does not lie within the scope of your

authority as a teacher to set up conditions that will bar him from it, unless it can be shown that these conditions are necessary to an understanding of the subject. Your particular method of teaching it may not be infallibly right, and at the same time his method of learning it may not be necessarily wrong. It is therefore your duty to see to it that he learns the subject. If he fails to do so the failure will be charged to you and not to him."

Long Condemned Methods Still Used With Stutterers. The case of this young man is related because it is typical of what we tolerate in almost every community and in almost every school in the land. There can scarcely be found a school community that could not duplicate it many times. Such practices are as crude and as primitive as the medical methods of the Middle Ages now seem to us to be. The fact that medieval methods can still be in actual practice in any realm of human affairs forces us to realize that civilization is not one big, solid and consistent whole, moving forward *pari passu* at all points along its frontier. Rather is it full of gaps and spots. Our attitude toward, and our general ignorance of, stuttering, our failure to appreciate its bearing upon multitudes of other problems of child life, and our indifference toward the stutterer personally, constitute one of the dark spots of residual barbarism.

For would it not be counted both crude and barbaric to hold deaf and blind children to the same exactions which we place upon normal children in school?

The treatment of the insane and of the criminal has been so radically changed that we can look back upon the methods of a half century ago as being unthinkable in modern society. In the last decade the attitude of the public toward the feeble-minded, and toward the responsibility of society in their case, has been reconstructed. As to the stutterer, as we shall point out (Chapter VIII), no such revolution of public conscience has taken place. A few private sources of treatment or "cure," a few speech specialists in certain of the larger school systems of the country, and in very recent years a few child guidance clinics, all of which use methods that are open to serious criticism, are available to those who suffer from stuttering. All of these systems of relief put together would be able to accommodate but the merest fraction of the actually existing number of cases. Hence the victims are left for the most part without help of any sort.

Rival Professional Claims Have Hindered Progress. What are some of the causes of our failure to meet so glaring a need? Undoubtedly confusion and conflict regarding professional jurisdiction in the case have contributed something to this fail-

ure.[2] It is not that there are so many who are desirous of assuming the burden of caring for stutterers. On the contrary the chief disadvantage of confusion and conflict is that it invites neglect. There are everywhere more calls than can be met by existing agencies of relief. Wherever there is doubt concerning the nature of a human affliction and confusion as to who should assume responsibility in the case we are likely to witness an indefinite postponement of action. The case of the stutterer exemplifies this rule.

Medicine has, since the days of Hippocrates, taken cognizance of this disorder. Medical authorities have until comparatively modern times been the only scientifically equipped persons to pay attention to it. The burden of opposing the fakeries and charlatanry practiced so extensively in this field has rested largely with them. But this does not mean that training in medicine per se will qualify a person to deal with stuttering. No one can appreciate this fact better than those who, like the author of this book, have the privilege of teaching medical students. If the evidence adduced in the subsequent pages of this book can be

[2] It is difficult to mention this point without seeming to court controversy. One cannot, however, fail to refer to it since it appears so frequently in the literature of the subject. Moreover, the assertion that the problem belongs exclusively to this, that, or the other profession carries with it by implication a definite diagnosis, which he who would treat the subject could not overlook if he would.

accepted as valid, it must be said that the diagnostic and therapeutic principles established by psychiatry in dealing with nervous and mental disorders of the usual sort have so far failed to yield satisfactory results when applied to stuttering. It therefore seems necessary to say that, whereas training in medicine, and especially in psychiatry, has a value that needs no defense as a preparation for understanding and treating this disorder, it yet remains true that, given such training, one is not necessarily equipped specifically to deal with it.

The same can be said concerning training in psychology. Although, after some centuries of theoretical groping, stuttering is at last recognized as a mental phenomenon, the average psychologist is about as poorly prepared to deal with it as is the average physician. This amounts merely to saying that we must recognize the necessity of specialization here. Stuttering is a highly complex phenomenon, and in certain particulars somewhat unique. Though bearing in the main marks that are characteristic of other types of disorder, it cannot, apparently, be wholly subsumed under the familiar working categories of the typical clinician. Indeed, the attempt to apply concepts derived from dealing with other essentially different types of condition to stuttering has been responsible, no doubt, for

much of our present inefficiency in coping with it.

There is apparent both in medicine and in psychology an increase of interest in totalities, functioning organisms, personalities, etc., as compared with the previous stress of attention to isolated parts and processes. As this development proceeds the disadvantages of applying medical and psychological concepts to stuttering will be minimized. But that we have by no means reached the point of development at which such a source of error may be disregarded can be indicated by a concrete example:

Dr. Greene Exemplifies the Misuse of Medical Concepts. Dr. Greene of the National Hospital for Speech Disorders in New York City is seemingly making creditable efforts to treat stutterers in his institution. However, to judge by his own report of the work done by him, he illustrates what is here meant by the use of concepts that are inapplicable to the problem of stuttering. Leading up to one of the principles used by him in the treatment of stuttering he says,[3] "All cleft palate cases suffer from amusia, that is, a disturbance in the musical faculty. They all demonstrate one definite form of amusia, that of tone deafness. Defects in the musical and speech faculties (!) may coexist independently of each

[3] *Boston Medical and Surgical Journal*, July 12, 1923, pp. 57 ff.

other. The independent occurrence of disturbances in their musical faculty points to the existence of a separate center presiding over the musical memory."[4] No progress in remedying stuttering can be made, he says, until "the patient's musical sense has been developed." In trying to follow this account one cannot but wish that the facts upon which these striking conclusions are based had been presented.

Educational Miracles Seem Possible in Dr. Greene's Hospital. Not only can new "faculties" be installed but new personalities can seemingly be imparted by the hospital methods of Dr. Greene. Concerning what he undertakes to accomplish with his patients he says: "Of a necessity they must be given a personality that is able to face the reality of facts. They are given the ability to surmount their distorted imaginations and emotionalism and view things in the light of cold reasoning. A standard balance between emotional and intellectual processes is established." Such accomplishments as these seem like the dis-

[4] It is not difficult to understand how a cleft palate may interfere with tone *production*. It is also easy to see how an inability to *produce* tones may have educational effects upon the keenness of tonal discrimination. But how there can be an anatomical or physiological basis for an essential and invariable coexistence of tone deafness and cleft palate, it is not so easy to understand. Such conditions must, if they exist at all, be congenital and organic in character. Yet the ease with which Dr. Greene seems to think they can be remedied makes this assumption somewhat doubtful.

tant goals toward which education, rather than medicine, has been striving for centuries. To talk about such educational ends as already possible of achievement is to assume that the science of human character, or ethology, as previsioned by John Stuart Mill, is no longer a far-off dream but a *fait accompli.*

The method, which betrays itself at once as being essentially educational in character, is stated to be as follows: "The backbone of our treatment at the hospital is based on two broad principles: 1, to fit men to live agreeably in their environment; 2, to enable them to live lives that are useful and helpful. In order to attain that objective, psychological, educational, social, and human character treatment must be carried out, and on account of the great number of patients that we have daily I have instituted group analytical reconstruction treatment, if it can be termed that."

In spite of the fact that such worthy aims as are here set forth cannot but command respect, one is unable to forbear some doubt as to the possibility of accomplishing them in so simple, so ready and so wholesale a fashion. Whoever has discovered a pedagogical method by which such extraordinary things can be brought about is, surely, morally obligated to reveal them to educators, for, though these things have been the

major objectives of education since time immemorial, educators have never considered them so readily achievable.

Greene Considers Stuttering a Medical Problem. Although the two "broad principles" constituting the backbone of his treatment of stuttering (i.e., 1, "to fit men to live agreeably in their environment," and 2, "to enable them to live lives that are useful and helpful,") are but commonplaces of educational idealism, Greene insists that the treatment of stuttering is essentially a medical responsibility. He says, "Traditionally, speech is considered within the province of the educator. When there is an abnormality, it must come within the province of the physician, because the doctor's main interest has always been in abnormalities concerning the psycho-physical phases of the human being, and it becomes incumbent on him to discover and bring about the best means of giving relief."

Dr. Greene, however, points out that the medical profession is disinclined to accept the responsibility of caring for disorders of speech. He says, "In going through the literature on abnormal or defective speech, one is struck by the constant reiterations of the lack of interest on the part of the medical profession in those that suffer from speech disorders. If anyone should take the

trouble to attend a meeting where papers are read or a discussion is held in reference to those suffering from defective speech or voice conditions, invariably the fact is brought out that doctors know very little regarding the subject and are not interested."

There must be an explanation of this neglect of stuttering by the physician other than the sheer indifference implied by Dr. Greene. To remain in a state of both ignorance and indifference about a form of human suffering affecting thousands of persons, and to claim meanwhile the exclusive right to deal with it, would be difficult to harmonize with the highest ethical standards. May not the seeming neglect charged by Dr. Greene be explained on the basis of the fundamental character of the disorder and especially of the form of treatment required in dealing with it? Is it not a fact that those beneficent results, which he claims to be possible of accomplishment in brief hospital treatments, are in reality achievable, if at all, only by months and even years of daily living experiences, and that too only when the human organism is still plastic? On the other hand is it not also true that the entire background of the physician's training habituates him to a much shorter period of time between his treatments and their results than is necessary in the case

of stuttering, excepting, of course, the psychiatrist? [5]

[5] Since the completion of this manuscript Dr. Greene, in joint authorship with Emilie J. Wells, has written a book, "The Cause and Cure of Speech Disorders." The part of the book—considerably less than one third—which is devoted to the subject of stuttering, is in essential particulars but an expansion of the point of view quoted above. The criticisms already made will find even greater justification in the book than in his previously published discussions.

It might be added here that Dr. Greene's book gives one the impression that he has not familiarized himself with the literature of the subject. One is puzzled to know whether he understands the various scientific theories offered in explanation of stuttering, or whether he, though understanding them, contemptuously ignores them. He reiterates his conclusion that stuttering is essentially an emotional phenomenon, thus placing it squarely within the domain of psychology, yet he is far from being disposed to grant the psychologist any prerogatives in the case. Rather than to defer to the psychologist he seems to prefer to get along with his own home-made system of psychological explanation. His treatment of stuttering is based upon no particular system, or principle of interpretation. His book is a sort of manual of general advice, such, for example, as an old-fashioned family physician might give to a neurotic patient. Witness some sample chapter headings: "Development of Character"; "The Need of Accurate Knowledge"; "Telling Yourself the Truth"; "Positive and Negative Thinking"; "Peace and Good Will."

The author of this book has found it necessary to deny the possibility of removing or extracting, by psychoanalysis or other hospital or clinical procedure, the deep-rooted and ramifying emotional, ideational, and motor reaction tendencies that constitute the causal background of stuttering. The reasons for this denial will be given in a succeeding chapter, in which the Freudian treatment of stuttering will be discussed. Dr. Greene, to be sure, does not employ the Freudian technique, but when he assumes (See p. 131) that some sort of hospital treatment can "remove fear" and thus relieve stuttering, he is using the essential principles of Freudianism minus the technique of psychoanalysis. An abbreviated outline of his treatment is as follows: (1) Patient begins treatment; (2) Learns stuttering is symptom of other conditions; (3) Learns how to operate his physical machine; (4) Reduces incoordinations; (5) Eliminates some fear; (6) Symptoms of

Books on Subjects Relating to Children Seem Deficient in Their Treatment of Speech in General and Stuttering in Particular. In spite of the vital significance of speech in relation to mental development, the subject is often inadequately handled in otherwise valuable books. A somewhat recent example is the book, "Child Guidance," by Dr. and Mrs. Blanton. Both of these authorities have interested themselves in speech pathology, have done much practical work, have taught in that field, have written some of the best-known publications on the subject, and are counted leading authorities on the question. Yet their book, which would naturally seem to be a most

fear disappear; (7) Better speech, more confidence; (8) Eliminates some other neuropathic symptoms; (9) Acquires mental and physical standardization (?); (10) Learns control over nerves; (11) More speech improvement; (12) Greater confidence, less feeling of inferiority; (13) Fear of talking fades; (14) Acquires ability to adjust to conditions; (15) Qualifies and takes his place in the world as any well-balanced individual."

That Dr. Greene appreciates the significance of the task of overcoming stuttering and acquiring normal speech may be seen from the following citation (p. 192): "It means—how to use your mind, how to think straight, how to be yourself, how to say what you really think and feel, how to care for your physical welfare, how to keep an emotional balance. The cure, in fact, is a complete mental reconstruction, which means a new personality and a new life." One stands aghast at the individual who, though appreciating the miracle of it, yet claims to be able to accomplish it by the simple common-sense tactics, group lectures, or group analysis (whatever that may mean), which Dr. Greene professes to employ in his institution. Dr. Greene, if we may accept such claims, has evidently anticipated the endocrine enthusiasts who have for some time been hoping to be able to promise new personalities for old, by the administration of extracts.

happy medium for setting forth any definite conclusions which the authors may have reached during their years of experience with stuttering, is disappointing. It seems also to have been an opportunity to set forth any policies which the National Committee of Mental Hygiene may have for the handling of speech defective cases in the child guidance clinics throughout the country. But here again we are disappointed. In this book of three hundred pages about three pages are devoted to the problem of stuttering, and the treatment of the subject is of the most general sort. One is led to expect that these authors may subsequently see fit to give others the benefit of their experience in this field.

Dr. Jacoby, in an otherwise well-written book,[6] handles the whole question of stuttering in a total of some two or three pages scattered here and there throughout the book. He too exemplifies the confusing mixture of concepts; especially is this to be seen in the attempt at explanations in organic terms of an essentially functional condition. He says, e.g., that "stuttering children and those who have become apathetic as a result of some brain affection can be made to sing and, while doing so, to pronounce their words clearly and distinctly. Later they are able even to recite faultlessly the texts of songs with which they

[6] "Child Training as an Exact Science."

are familiar, and through the bypath of singing they regain the power of speech."

Jacoby's Deductions About the Cure of Stuttering. One may say regarding this bit of deductive and seemingly speculative thinking that to group stuttering and apathy due to brain disease together either in diagnosis or treatment betrays a misconception of stuttering at least. It also points to a tendency, all too common, to reduce it to familiar anatomical categories. The stutterer, unlike the aphasic, has never lost the "power of speech." He has no brain lesion to be dealt with, no form of cortical disease condition to be "cured." A stutterer *can speak* as fluently as anyone *under certain conditions*; the aphasic cannot speak under any conditions. Many stutterers have been orators on the platform, though stutterers in private conversation. Again, the stutterer does not have to be taught to sing. After many years of clinical experience the author is obliged to say that he has never found a stutterer who could not sing, nor has he ever found a student of the subject, except Bluemel, who claimed that stutterers could not sing. If, therefore, as Jacoby suggests, stutterers could be cured "through the by-path of singing," there would be none to cure, if the author's clinical cases can be counted for a fair sampling of stutterers in general. This book will endeavor to clear up such

misconceptions as these, and to present the problem of stuttering from a different point of view. The author understands the fundamental difficulty of the disorder to be an *intermittent inability to meet certain social situations through spoken language.* This interpretation and the therapeutic implications of it will be presented in the succeeding chapters.

The concepts and categories of medicine have been found inapplicable to the case of the stutterer, and for this reason physicians, though first to come to his rescue and to offer what help they had, seem, by the logic of the situation, more and more inclined to leave to others the responsibility for this treatment, as we have just been told. (Cf. Dr. Greene quoted above.)

Educators Should Take Up the Task Abandoned by Physicians. The situation is the reverse with educators—and herein we have another cause of the unhappy plight of the stutterer. The categories and concepts of education, as we shall endeavor to show (Chapter VIII), when viewed fundamentally and in the light of newer educational ideals, unlike those of medicine, do apply to the case of the stutterer; but teachers have either not so conceived their task or else are hampered in the execution of it by the inelasticity of the system under which they work. Hence the stutterer is in process of being abandoned by one profession,

and is so far, in the main, disowned by the other. Educational ideals are, however, changing rapidly, and it is the author's opinion that the stutterer's hope lies in this fact.

Educational Ideals Are Changing. The conception of teaching, all too current, that it is the process of imparting to growing minds the subject-matter of the curriculum, and that the success of this process is to be measured by the amount of the subject-matter that is retained and given back by the pupil on examination, is a conception that, regardless of the needs of stuttering children, cannot measure up to the reconstructed standards of the future. Students of educational tendencies already realize that the concepts and categories in the minds of the well-trained teachers of the future will include, as of central importance, behavior tendencies, emotional trends, mental sets, attitudes of mind, character dispositions, mental and physical habits, etc., rather than mere information, as the goal of the educative process. Education thus conceived will, as we shall later try to establish, ultimately meet the needs of the stutterer.

Psychology Has Been Indifferent to the Problem of Stuttering. It is recognized that psychology sustains an important relation to education; and while it is still busy establishing itself as a science with its own technique and canons,

and while it, like all new sciences, is likely to overreach itself in rushing too readily into various sorts of applications to practical needs, it is still to be acknowledged that "system builders" and schools of scientific opinion have been too numerous and have in too great a degree dominated the thinking in this field. This was far more the case when the author first began his work on stuttering some fifteen years ago. When this investigation was begun the Psychological Index had not even listed the subject. Not a psychologist could be found who professed any experimental knowledge of the subject. As a rule psychologists in charge of the laboratories of the country were busy with the analysis of conscious mental processes, and with the various academic aspects of their subject. Some, whom the writer attempted to interest, frankly acknowledged that they were afraid of the study of a subject so practical as that of defects of speech, one that was so far off the beaten paths followed by the great leaders of the day in the field of psychology. Wundt, who a decade or so ago was possibly the leading influence in most of the American psychological laboratories, had expressed himself in no uncertain terms [7] about a psychologist, Meumann, who had sacrificed himself by prostituting psychology to practical ends.

[7] "Ueber reine und angewandte Psychologie," *Psychol. Stud.* V. 1909.

Charlatans With Secret Cures for Sale Have Turned Many Away. So many charlatans have always plied their trade in the field of speech defects that one who announces his intention to work in it has a considerable amount of prejudice to overcome. There existed, therefore, when the author began his studies, the reluctance of psychology to undertake anything practical, and the general suspicion of this particular subject in the scientific world as a whole. The situation is however getting better rapidly. There is an encouraging number of departments of psychology that are undertaking research in this line. At least one has been subsidized by funds from the National Research Council. When a subject becomes useful for graduating theses it has not only passed out of the status of academic inferiority, but has been guaranteed at least a certain amount of scientific attention, whatever may be the results that may accrue from the investigations.

The Fear of Practical Subjects Has Exposed Psychology to Crude Systems. The neglect of the study of certain psychological problems merely because they may happen to have some practical significance is unquestionably responsible in large degree for the psychological crudities inherent in the several varieties of independent systems that have sprung up outside of the boundaries of psychology. The science of psychology

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and the interests of humanity would, possibly, be better off at the present moment, for example, if Freudianism had from its inception found it necessary to grow up in the light of the established principles of general psychology. Instead of that, with all that it may be said to have contributed, it seems to the orthodox psychologist to be a scientific excrescence that is so full of inconsistencies as to baffle analysis and discourage wholesome criticism. There being no chance of harmonizing such conflicting forces, the scientist is called upon to ally himself with this or that school of thought in an all-or-none fashion rather than to synthesize the contributions of all into a unified and cooperating whole.

Scientific Indifference Has Led to Public Indifference. Arising doubtless out of the confusion of jurisdiction and the consequent scientific neglect of the problem of stuttering is a state of public indifference toward it as a problem in child welfare, that, in the light of modern humanitarianism, is difficult to understand. The stuttering child is exposed to cruelties which, if properly understood, would constitute grounds for action by philanthropic agencies. But nobody protests, and nobody seems to care. The author has circularized every national organization, the address of which he could secure, having child welfare as its purpose, and has so far been unable to find a

single one that has been sufficiently interested in the problem to take account of it by including it among its undertakings. The officials of several of the most wealthy and most prominent of these organizations have been interviewed personally by the author, and have been written to by him through a period of more than ten years, without any results so far. During 1924–1925, while on leave of absence at the University of Iowa, the author had the privilege of sending out an inquiry, under the auspices of the Iowa Child Welfare Research Station, to all the child welfare organizations that are listed in the Red Cross Handbook of Social Resources of 1921. The following form of letter was addressed to 21 of these organizations:[8]

[8] The list of organizations was as follows:

1. The American Child Hygiene Association, Baltimore.
2. The American Pediatric Society, Philadelphia.
3. The American School Hygiene Association, Pittsburgh.
4. The Association of Women in Public Health, Brooklyn.
5. The Child Health Organization of America, New York City.
6. The Children's Bureau, Washington.
7. The Methodist Child Welfare Society, Washington.
8. The National Child Health Council, Washington.
9. The National Child Welfare Association, New York City.
10. The National Conference of Social Work, Cincinnati.
11. The National Conference of Mothers and Parent-Teachers Associations, Washington.
12. The National Education Association, Washington.
13. The National Council of Women, St. Louis.
14. The Child Welfare League of America, New York City.
15. The Commonwealth Fund, New York City.
16. The National Catholic Welfare Council, Washington.
17. The National Committee for Mental Hygiene, New York City.

DEAR SIRS:

The Iowa Child Welfare Research Station is undertaking, in connection with a general study of conditions affecting child life in certain communities in Iowa, to look into the question of defects of speech. The Station is of the opinion that there is need for a more adequate and more scientific handling of this problem. To that end it begs to submit to your organization a brief list of questions, the prompt answers to which will be of real service and will be highly appreciated:

1. Do you consider that the problem of defective speech in so-called "normal children" falls within the scope of your duties? .....

2. If not, with what other child welfare organizations, or scientific, professional, or educational bodies do you think the responsibility for this problem lies? .....

3. Has your office collected any data on (a) the prevalence of speech defects among children, (b) the ages at which such disorders are most likely to occur, (c) the extent to which children are handicapped in other respects by their presence, or (d) the character and effectiveness of the corrective measures now in common use? ..... If so, will you please send us such data?

4. If you have no such data, would you consider them to be desirable in the prosecution of your work for children? .....

5. Would you be interested in examining and giving us the benefit of your judgment concerning a plan for the launching of a program of relief for speech

18. The National Child Labor Committee, New York City.
19. The Child Welfare Department, W. C. T. U., Ann Arbor.
20. The Russell Sage Foundation, Department Child Helping, New York City.
21. The Rockefeller Foundation, New York City.

defective children, which in the estimate of the Station is worthy of your careful consideration? .....

Analysis of Replies Shows Lack of Data but Possible Interest. To these 21 letters, 9 replies were received, a result which of itself is a finding of no little significance. Only one letter, that from the Rockefeller Foundation, disclaimed any interest in the subject, acknowledged no responsibility in the case and had no data on the subject. It is interesting to note that the Russell Sage Foundation, through its Department of Child Helping, expressed the opinion that the Rockefeller Foundation was the logical organization to take the matter up. Two other organizations disavowed any responsibility, had no data on the subject, but were interested. Six organizations assumed responsibility and expressed an interest, but had no data on any aspect of the question. It therefore turns out that, so far as our replies may be considered representative, not a single child-welfare organization of national scope in America has done anything regarding this problem which is of peculiar and vital concern to childhood, and not a single one, so far as we could ascertain, has in mind to do anything. It seems to the author that this is an inexcusable situation. In addition to the scientific and professional conflicts of opinion as to jurisdiction already discussed one may add, by way of explaining the situation, the lack

of a program that is sufficiently comprehensive, and that is free from the scientific objections that must be lodged against the programs now in operation. From the tenor of letters received from certain child-welfare organizations one may gather that they are waiting for a well-wrought system of relief, to which they may give their support. Before any such system of relief can be devised it seems clear to the author that a scientific understanding of the nature of the disorder must be achieved. It is with the view to contributing something toward this end that this book has been written.

That there is an appreciation of the problem in some of the child-welfare agencies one may infer from the letter received from Miss Abbott of the Children's Bureau. She says, in part: "In as much as the Children's Bureau is directed to investigate all problems of child welfare, this could undoubtedly be considered to come within the scope of the Children's Bureau. We have, of course, never had the appropriation which would enable us to fulfill the responsibility given us by the statute."

Mr. Dinwiddie of the American Child Health Association replied in part as follows: "The American Child Health Association is interested in seeing that any physical or mental defect is given adequate consideration in child health pro-

grams and medical attention should be available at the earliest moment, so that children with defects may be promptly referred to the proper persons or agencies. The calls upon us for service, however, and the many problems which crowd for attention have been so pressing that it would not be possible for us to undertake additional important pieces of research, just now."

How Long Will Stutterers be Expected to Wait for Relief? And thus it goes! Through centuries of waiting the stutterer has established the tradition that he can continue to wait. All programs of child welfare and relief are made out without so much as a passing notice of his needs. If the stutterer must wait until all other child-welfare problems have been solved, and until there is a surplus of funds for which no other need can be found, then he may as well conclude to make the most of a bad situation.

The author is of the opinion that no other comparable human need has ever thus been treated. This endless process of pushing the stutterer aside, this postponement *sine die* of efforts in his behalf, is considered to be wrong for the following general reasons:

Stuttering Means Suffering. (1) In the first place it is wrong from a purely humanitarian viewpoint. Stuttering children are suffering children, although the habitual public attitude toward

them does not indicate a general realization of this fact. In the chapter on Symptomatology we have described physiological and psycho-physical changes accompanying stuttering, that in our opinion, can only be construed as being symptomatic of profound emotional disturbances. But in spite of what recent discoveries have taught us concerning the permanent effects of emotional experiences in the early years of child life, we let these things pass as if stutterers were immune to experiences that injure other children.

Tupper, the Oxford poet, himself a stutterer, thus sympathetically portrays the poignancy of the stutterer's affliction:

> But nervous dread and sensitive shame freeze the current of their speech;
> The mouth is sealed as with lead, a cold weight presseth on the heart,
> The mocking promise of power is once more broken in performance,
> And they stand impotent of words, travailing with unborn thoughts;
> Courage is cowed at the portal, wisdom is widowed of utterance;
> He that went to comfort is pitied, he that should rebuke is silent,
> And fools, who might listen and learn, stand by to look and laugh;
> While friends, with kinder eyes, wounded deeper by compassion;
> And thought, finding not a vent, smoldereth, gnawing at the heart,

And the man sinketh in his sphere for lack of empty sounds.
There may be cares and sorrows thou hast not yet considered,
And well may thy soul rejoice in the fair privilege of speech,
For at every turn to want a word—thou canst not guess that want;
It is lack of breath or bread, life hath no grief more galling.

That society has never come to realize the fidelity of Tupper's portrayal is not difficult to show. One could scarcely imagine, for example, a person so callous to human suffering as to laugh at a crippled child's efforts at walking, or at the gropings of a blind child. But who is there who does not habitually laugh at the painful efforts of the stutterer to speak, or relish a story at his expense?

Stutterers Are Numerous. (2) In the second place it must be said that from the standpoint of the numbers involved there is no justification for omitting the stutterer's case entirely from child-welfare relief programs. In Chapter III an attempt is made to get together the available facts concerning their probable number in the United States. If our conclusions are correct, stutterers outnumber many times the deaf and dumb, also the blind, and, unless we include the higher grades of amentia, even the feeble-minded. Bruce says,[9]

[9] "Handicaps of Childhood," p. 209.

"At this very moment there are in the United States at least three hundred thousand persons who stammer so badly that they are severely handicapped in the gaining of a livelihood. Thousands have resorted to medical advice, or have attended so-called schools for stammerers, with lastingly beneficial results to few. Small wonder that there is, among stammerers and their friends, a tendency to believe that stammering is one of the hopelessly incurable maladies of mankind."

Stuttering May Originate in Imitation. (3) In the third place, were it justifiable to ignore the case of the stutterer himself, it would be inadvisable to do so because of the effects of such a policy on the child of normal speech. The effects on all children of a failure to take expert notice of speech habits and peculiarities cannot but be deleterious. Such effects are both indirect and direct, both remote and immediate. Concerning the remote effects one may say that speech, being the one great avenue of expression for the intellectual and emotional life, and at the same time the function that is most intimately related to the process of mental growth, is of superlative importance in relation to mental health. Stuttering is but a gross and conspicuous manifestation of the mental and emotional abnormalities so often found to outcrop in the period of the rapid growth

of children. There are other more subtle and less obtrusive forms of mental distortion springing from the same roots. As to the direct and immediate concern which the child of normal speech has in the proper care of the stutterer, one needs but to call attention to the fact that stuttering may and often does have its genesis in the playful act of imitating a stuttering child. This means that every stuttering child in a school room becomes a menace to every other child who hears him talk. This statement would not hold of any other types of exceptional children, such as the blind, the deaf, the crippled, and the mentally defective, for whom special educational facilities are taken for granted.[10]

Stutterers Are Potentially Normal. (4) Although the percentage of stutterers who are "treated" at relatively mature ages with success is disappointingly small, it nevertheless remains true that stuttering is remediable. Unlike the blind, the deaf, the feeble-minded child, the stut-

[10] To say that stuttering may have its *genesis* in imitation does not imply that it is merely a motor habit set up by repetition. If stuttering amounted only to that the remedying of it would never have become the perplexing problem that it is now known to be. It is that, to be sure, but it is also something more. In the diagnosis of stuttering as of other similar functional disorders one must keep clear the distinction between predisposing and exciting causes. Given a certain diathesis (by no means uncommon), a history of predisposing emotional reaction tendencies, especially those associated with human beings with whom vocal communication is subsequently required, the act of imitation may afford a potent provoking cause of stuttering.

terer presents no irremediable defects of body or mind. If properly environed prior to the fixation of his mental, emotional and motor habits, it is to be expected that his difficulty will yield to correct remedial measures. It is doubtless true that the low percentage of cures reported by clinical practitioners [11] may be due to late treatment, and also possibly to incorrect diagnosis and treatments based thereon.

The Solution of the Problem of Stuttering Would Be Fruitful Educationally. (5) Finally, it should be said that the neglect of the problem of the stuttering child in our school systems is symptomatic of a condition of inelasticity which should be remedied regardless of the plight of the stutterer himself. It seems established that stuttering children are as capable as other children of receiving an education, and that they are quite as willing to meet the conditions imposed upon them. For an educational system to exact more than this of a child would seem to be unjust. Yet in actual practice the stuttering child in the school system, in addition to meeting these conditions, is called upon to participate in vocal exercises for which he is painfully unfitted. If he makes a failure of his school work, or drops out in defeat, it does not usually occur to us to ascribe his fail-

[11] Dr. E. W. Scripture, e.g., says that not more than 5 per cent of treated cases ever fully recover.—Lancet, 1923, p. 750.

ure to our own insistence upon the use of a fixed method of instruction in his case. Rather do we count it merely as an unavoidable misfortune of the child himself.

With the essential mental conditions of education provided, and, seemingly, only certain variations of methods of instruction required, the case of the stuttering child in school, wholly aside from what may be considered the clinical requirements involved, invites educational experimentation, and at the same time promises, by way of indirect results, at least as valuable consequences as those known to have accrued from similar investigations of the past. If the work in recent years on behalf of mentally defective children found scattered throughout our schools has yielded unexpectedly important results to the whole school system, special attention given to the functionally variant types of children, such as stutterers, may reasonably be expected to yield results of even greater importance, since they are more nearly comparable with ordinary children.

CHAPTER II

TERMINOLOGY AND CLASSIFICATIONS

The Bewildering Variety of Speech Defects. To those who have not made a special study of the question there seems to be a bewildering number of defects of speech. This book will consider only one of the major varieties, namely, stuttering. There is good ground for certain recent claims that this disorder should not really be classified as a "defect of speech," since the defectiveness of utterance characteristic of it is but the symptomatic manifestation of the unhealthy mental and emotional attitudes, which constitute its real pathology. However, one may avoid the inaccuracies of definition if the basic principles of differentiation are made clear. This chapter will deal with classifications only so far as it may seem necessary to do so in order to avoid confusion and to clear the ground for subsequent discussion. It must be admitted that most of the terms used in these classifications are employed in different senses by different authors. So long as we can

reach an agreement, however, concerning the clinical facts under discussion, a considerable range of nosological preference is admissible.

The Three Main Groups of Speech Defects. By most writers it has been found advisable to maintain a sharp distinction between the three major clinical groups of speech disorders.[1] In this way it is easy to place each variety in its appropriate group. The three groups are, (1) defects of speech growing out of certain brain abnormalities; (2) defects of articulation whether due to organic or developmental conditions; and (3) a mentally conditioned, intermittent difficulty of speech, commonly referred to as stuttering or stammering.

1. APHASIA AND ITS VARIOUS FORMS

The first type of defect is known as aphasia, and refers to the loss of both the ability to speak and the ability to understand spoken or written language. Any cortical condition, in short, that interferes with the processes of communication through language is designated aphasia. It is generally assumed to be a linguistic defect arising from a pathological condition set up in a developed brain through lesions or diseases, though what is called "congenital aphasia," due to natu-

[1] See the author's "An Experimental Study of Stuttering." *Amer. Jour. Psychol.* XXV, pp. 203 ff.

ral variations or anomalies of the brain, is frequently mentioned.

The cortical processes involved in communication are mediated by the receptive, the associative, and the motor mechanisms. The receptive processes include those of hearing and seeing especially, and to a minor degree also those of touch. The associative processes include those that provide the complicated intra-cortical connections and that make possible the utilization of past experiences in present responses. The motor processes of speech have to do especially with the functions of vocalization, and the manipulation of the organs of articulation. They also include the hand movements of writing, and to a minor extent other processes carried out in gestures.

In recent years doubt has arisen among certain investigators concerning the existence of fixed and rigidly demarcated localizations of cerebral functions, such as were formerly taken for granted. Franz refers,[2] for instance, to a statement by Head, who after a special study of aphasia said that "there is not a single manifestation presented by the defects of language, due to a unilateral lesion of the brain, that can be explained by destruction of auditory or visual images." Since the days of the earlier investigators in this

[2] "Cerebral-Mental Relations." *Psychol. Rev.*, March, 1921.

field, facts contradictory to the original conclusions have come to light. In certain cases of brain injury resulting in disordered speech, for instance, it has been found that the speech function will be recovered while the lesion remains. Again, in cases where the organic impairment is the same the speech symptoms have not always corresponded. And finally, in the case of certain brain involvements, functions which are not controlled by these centers have become disturbed. Von Monakow and others have introduced the idea of vicariousness of cortical functioning, and also "diaschisis," or acting at a distance, as means of reconciling the seeming inconsistencies.

It is still to be assumed, however, that there are somewhat vaguely demarcated regions that control the several processes involved in speech. The motor functions of vocal utterance have their genesis in the convolution anterior to the fissure of Rolando, in the portion commonly described as Broca's area, and the Island of Reil underneath it. Writing, which is included among the processes of speech, has its center of cerebral control in a region near the middle portion of this same pre-Rolandic convolution. The receptive center for hearing is located in a small spot on the first temporal convolution near the junction of the Fissure of Rolando with the Fissure of Sylvius. The visual receptive center is located for the most part

on the mesial surface of the occipital lobe, in the cuneus and the lingual gyrus. Injuries to these regions may be expected to bring about at least temporary disturbances in the functions mediated by them. There is what is called an auditory word memory center in the first temporal convolution, near the upper end of the Fissure of Sylvius, and a visual word memory center near the central portion of the lateral surface of the occipital lobe. According to Head, as we have noted, no language defects are traceable to unilateral injury of these regions, though one frequently meets with clinical reports of congenital word deafness and word blindness.

Aphasia may be sensory, motor, or association in type according to the character of the region of the brain involved. The sensory and association forms of aphasia interfere with the perception and understanding of language, either of written language, as in the case of what is called alexia, or of spoken language. Aphasia, as we commonly think of it, is a motor defect, such as we see in what is called Broca's aphasia. In this group are found aphemia, or the inability to speak, also called alalia, and apraxia, the loss of general volitional control. Paraphasia is a term used to designate an aphasic confusion of words. Dyslalia has been used to describe difficult speech arising from organic changes or deformity of the

vocal organs. Dysphasia is the term applied to 'a lower degree of aphasia.' Dysarthria is jumbled speech; bradylalia is slow speech. Included within this group is the paretic speech of paralytic dementia, which resembles somewhat the speech of a person under alcoholic intoxication. The tongue is thick and unwieldy.

In addition to defects of speech associated with organic lesions or other abnormal conditions of the cerebral cortex, there are defects arising from similar abnormalities in lower brain centers, such as the nuclei of the Pons Varolii, and the bulb or medulla oblongata. When injuries to these lower brain structures occur the organs of articulation become weakened, and speech is indistinct and monotonous, and is finally lost entirely. One frequently meets with descriptions of "pseudo-bulbar paralysis," in which condition there is found a weakening of the vocal and articulatory apparatus. One may find in this condition the motor symptoms of stuttering minus the psychic accompaniments and characteristics. Even intermittency is noted, but this intermittency is accounted for, not, as in the case of stuttering, by changes in emotional attitudes, but solely on the basis of the nerve energy involved in an act. Though the patient may be unable to carry on conversational talking, if aroused to laughter or crying he can express himself. Whistling, shout-

ing, singing, grimacing may be possible when talking is not.

2. DEFECTS OF ARTICULATION

Defective articulation, which constitutes the second clinical grouping of abnormalities of speech, is found to be present in all cases of interference with the central neural mechanism of control of speech organs. An aphasic, for example, will exhibit faulty articulation and may even be found to stutter. But there is an almost endless variety of defects of articulation not associated with organic brain conditions. Hence it is necessary to make a group to include such as these.

THE TWO GENERAL TYPES OF DEFECTS OF ARTICULATION

(a) Organic

Defects of articulation may be roughly divided into two classes, one being due to structural abnormalities of the peripheral organs of articulation, and the other being due to developmental deficiencies. Any injury to or variation in the structure of the tongue, the lip, the hard or soft palate, the nasal or pharyngeal or buccal cavities will affect articulation in proportion to the severity of the condition. Nasal obstructions by adenoids, enlarged turbinates, deflected septum,

polypi, etc., will affect articulation. Harelip and cleft palate are congenital conditions that seriously affect speech. What is known as lisp or tongue tie may be due to the shortness of the tongue band or lingual frenum. Teeth out of line, or missing, may affect the normality of pronunciation.

(b) Developmental

There are many kinds of incorrect articulation, however, that cannot be referred to defects and anomalies of structure, such as are enumerated above. These are to be designated developmental varieties, as above suggested. Developmental defects may be subdivided into two groups. One is the form of defective utterance that is due to immaturity of normal development, such as we meet in the baby talk of children, or such as we find in the functional lisp, cluttering, etc., of normal adults. The other is the typical infantilism of speech accompanying arrested mental development.

Defects From Faulty Hearing. One should add to the above lists the several varieties of faulty articulation that are always found to accompany defective hearing whether in normal or subnormal persons. That normality of expression is bound up with normality of impression carries out the point of view intended to be emphasized in this

discussion of the question, namely, that speech in the abstract, and as mere activity of vocal-motor apparatus, is a conceptual artifact, a product of theorizing, which, so long as it dominates our thinking, will lead inevitably to misconceptions, and will preclude the possibility of effective measures of control. If in the study of any form of human experience we need to keep the "full neurone circuit" of James and McDougall in mind we need to do so, surely, in the study of speech phenomena.

Varieties Practically Endless. Considering the number and the complexity of the organs involved in the processes of articulation, and the possibilities of their variations in both structure and function, one may understand the possibility of an all but endless variety of defects to be listed under this group. As in the case of stuttering, catalogs have been made of the letters and sounds in the pronunciation of which the speaker has trouble, such as sigmatism, lambdacism, rhotacism, etc., but these, inasmuch as they cannot be exhaustive, but merely illustrative, can serve no clinical purpose. So long as we keep in mind the basis upon which the grouping is made there is no need to attempt to make out a complete list of defects of this kind.

3. STUTTERING AND ITS DIFFERENTIÆ

The third group of disorders, herein designated stuttering, presents a sharp contrast with the two foregoing groups in certain important particulars. In the first place, stuttering is not referable to any central or peripheral cause, nor has there been demonstrated any constantly operative physiological peculiarity that can be cited as its cause. Herein it differs fundamentally from all forms of aphasia and from all organically caused defects of articulation (group 2, above). In the second place it is intermittent in its appearance. Unlike the aphasic or the lisper, for example, the stutterer is known to be able to talk with normality under certain circumstances, whereas under other conditions he is unable to express himself at all. In the third place, the appearance of stuttering is closely associated with certain characteristic mental attitudes, the excitants of which are social situations, in which the stutterer finds it necessary to respond in spoken language to other persons. This relation of the stutterer's inability to talk to the conditions of his social milieu is the outstanding characteristic of his disorder. It may, indeed, be set down as the pathognomonic symptom of it. Herein stuttering differs fundamentally from all other forms of defective speech.

Variations in Terminology. There is a wide variety of terms used to designate this disorder.

In addition to being called stammering (the most commonly used American term), it has been called balbuties, bambalia, psychogenic disarthria, etc. Schulthess in 1830 seems to have recognized the fundamental differences between defects of articulation and stuttering, and to have adopted the German word *Stammeln* to designate the one and *Stottern* to designate the other. This usage was continued by Meumann [3] and is still authoritative. The German literature on the subject has been and is extensive, being on the whole much greater than that in any other language, and hence it has had influence in fixing usages. In English the terms stammering and stuttering have frequently been used synonymously. Some have attempted to use the term stammering to describe a peculiar form of stuttering called spastic aphonia, in which the individual exerts considerable effort to talk but emits no sound at all. This is also sometimes called "speech hesitation." Those who adopt this usage call stuttering that form of defect which is characterized by the repetition of initial syllables. This terminological usage seems to imply that *difficult speech,* or what we choose to call stuttering, is of two kinds. There is, according to this viewpoint, in the first instance, one kind which is characterized by tonic spasms of the speech ap-

[3] Vorlesungen zur Einführung in die experimentellen Pädagogik, 11 Aufl. 1911.

paratus, and another which shows a clonic, or interrupted, spasm of those organs. We have undertaken to point out that this is an erroneous clinical distinction (Chapter VI), that the fundamental difficulty in each of these cases is precisely the same, namely, an inability to succeed in articulate utterance of speech under certain conditions, and that the variations in the manifestations of this asynergic blocking, such as tonic and clonic spasms, are purely incidental and superficial, having nothing whatever to do with the basic character of the disorder.

Stammering Versus Stuttering. Some writers have insisted on using the term *stammering* to designate what we call *stuttering,* though this usage is seemingly on the decline. Tompkins[4] uses the term stuttering to mean merely "habitual repetition," without any pathological significance, whereas "stammering is spasmodic abortive speech." "The distinguishing difference between stuttering and stammering," says he, "is that stuttering is under the control of the will and stammering is not, except to decline to indulge in it."

Scripture, in his book, "Stuttering and Lisping," first published in 1912, adhered to the German usage so far as stuttering is concerned, but, probably on account of the confusion in the Eng-

[4] *Ped. Sem.* XXIII, 1916.

lish usage of the term stammering, departed from the German and adopted the term lisping to cover what is meant by the German word *Stammeln.* Although he justifies this usage by referring to the Anglo-Saxon word "wlisp," which meant baby talk, of which he says "negligent lisping" is a survival, he seems to have dodged one difficulty only to run into another of the same kind. If the English word stammer has a common-sense usage that stands in the way of its scientific precision of meaning, so does the word lisp. This term is commonly used to designate a certain form of mispronunciation, rather than all forms, namely, the use of the *th* sounds for the *s* sounds, as in the pronunciation of the word "some," which a lisper would pronounce as "thum." Wallin followed Scripture's terminology in making his survey of speech defects in the St. Louis schools in 1915–1916.

Hudson-Makuen's Terminology. In view of the impossibility of getting away from the associations of common-sense usage, and on account of the seeming impossibility of agreement among writers as to nomenclature, Hudson-Makuen suggested that all common-sense terms be abandoned and that we resort to purely technical usages that can be depended upon to carry a certain reasonably fixed and definite connotation.[5] He said,

[5] "The Laryngologist," St. Louis, November, 1910.

"The two terms which seem to designate most accurately the two important classes of defective speech—namely, the one in which spasmodic hesitation is the chief characteristic, and the one in which the elements are improperly enunciated—are *dyslalia* and *pseudolalia;* the former, meaning literally difficult speech, being used to designate spasmodic utterance, or stammering; the latter, meaning false speech, being used to designate all the other minor defects of enunciation and articulation." Dyslalia he considers a general term which covers several forms of the same defect, such as hesitation, stuttering, and stammering. "These latter three terms," he says, "represent or differentiate three forms of the affection, and bear the same relation to it that the terms *acute, sub-acute,* and *chronic* bear to the systemic diseases. Speech hesitation is acute, stuttering is sub-acute, and stammering is chronic dyslalia."

"Pseudolalia," he says, "as its name indicates, denotes false speech, and includes all forms of defective speech other than those which come under the head of dyslalia. As dyslalia is characterized by a spasmodic contraction of the muscles and mechanisms of speech, pseudolalia is characterized by the absence of this contraction and by either an entire omission or elision of certain important elements, or a substitution of faulty for the correct sounds of speech. Pseudo-

lalia is a general term and includes such forms of defects of speech as lalling, rhinolalia and sigmatism, etc., which have been used to designate the defective utterance of certain individual speech elements."

Objections to Hudson-Makuen's Terminology. The two classifications offered by Hudson-Makuen are, in the author's opinion, clinically correct, and their general adoption would be worth while. The author, indeed, has made use of this terminology for some years in classroom lectures, though he is not aware that the nomenclature has found its way into any considerable literature on the subject. However, the terms pseudolalia and dyslalia do not enable us completely to avoid the disadvantages of meanings formerly attached to them. For instance, Bridges[6] uses pseudolalia in the sense of "the production of meaningless sounds." Dyslalia, on the other hand, has been used in connection with organic speech defects, as we noted above. Keating's Dictionary of Medicine defines it as a "structural defect of speech; slow or difficult articulate speech, arising from organic changes or deformity of the vocal organs." This, we see, is an entirely different meaning from that which Hudson-Makuen would ascribe to it. Hence both of the terms which he suggests would involve the disadvantage of having to combat previous

[6] "Outlines of Abnormal Psychology," p. 55.

usages. For these reasons, and in view of the fact that no technical terms have as yet met with general adoption, the author begs to propose a somewhat different terminology which will avoid this disadvantage and at the same time will be both etymologically and clinically correct.

The Author's Suggestions as to Terminology. We have at the outset of this chapter listed, as the three great groups of defects of speech, aphasia, mispronunciation, and stuttering. We noted that aphasia included sensory defects, imagery defects, as in word blindness, word deafness, etc., and also writing and general motor defects. The term, therefore, connotes a wider variety of phenomena than is required in the treatment of defects of speech. We therefore need a somewhat narrower term that is applicable only to that form of aphasia which results in the inability to speak, and we have such a term in common use, namely, aphemia. We can therefore with advantage adopt this term to designate the disorders which we desire to include under our first group, the disorders, namely, that arise from organic brain defects or injuries. To designate our second group, or mispronunciation, we may employ the term paraphemia, built upon the same form of the same Greek word (*φημι*). To designate our third group, or stuttering, we may, on the same principle, adopt the term dysphemia.

The Greek prefixes, α, privative, παρα in the sense of "amiss," and δυς in the sense of "difficult," convey to the root word the meaning desired. Such terms would, moreover, correspond with current usages in psychiatry, such as in the terms anaesthesia, paraesthesia, etc. We therefore submit for adoption by those who are interested in this subject the three terms, *aphemia, paraphemia,* and *dysphemia* as definitive of the three main groups of speech disorders. If others have proposed this usage, this suggestion may be counted a second to their proposal.

The Importance of Clinically Correct Classifications. We made the concession at the outset of this chapter that a considerable range of preference may be allowed in the use of terms so long as we agree as to clinical facts. But when there is a contrariety of descriptive terms we are not always assured that there can be an agreement as to clinical facts. It is of even more serious consequence, however, when our illogical groupings lead us to correspondingly illogical therapeutic programs. It seems apparent that even so experienced an authority as Scripture has fallen into this latter error,[7] when he groups together and treats in practically the same way stuttering and the general group of disorders which he prefers to designate "lisping," but which is herein de-

[7] "Stuttering and Lisping." 2d ed., 1923.

scribed as mis-pronunciation, or paraphemia. To be sure Scripture introduces psychoanalysis, though it scarcely seems to fit into the general scheme of his book, which is essentially a manual of phonetic drills for the most part. Of the 286 pages in the book, those from page 74 to the end are concerned exclusively with corrective exercises and the various disorders for which they are used. There appears no fundamental distinction between his methods of treating the two groups of disorder if we may judge from the following statement,[8] that "there is another way of speaking which is unusual to the stutterer, namely, the way in which the normal person speaks. When he speaks in this way, he does not and cannot stutter. The therapeutic procedure on this principle will therefore be to teach him to speak normally. Each of the abnormalities that appear in his speech has to be determined and corrected. The result is perfectly normal speech. This is the only method of cure that should be permitted." This obviously can only mean that there is one remedy, phonetics, for both stuttering and lisping.

Scripture is one of the first investigators of this disorder to discover the social character of it. He says, for example,[9] in opposition to the theory

[8] *Ibid.*, pp. 74–189, and 190–243.
[9] *Ibid.*, p. 36.

that stuttering is a consonantal difficulty that this theory "neglects just the one vital characteristic of the disease, namely, that the defect is due to the fact that the stutterer thinks some other person is listening to him. As long as he is alone, he can speak perfectly. When a stutterer, who has become so accustomed to me that he speaks perfectly in my presence, is placed at the telephone, he will continue to speak perfectly as long as he sees my finger on the switch that cuts it off; the moment it is removed he knows that 'central' will hear him and he begins to stutter."

How one can insist upon speech drills as the only permissible method of remedying abnormalities of social attitude such as this seems somewhat difficult to understand. Phonetic drills are obviously required for the correction of mispronunciation, or lisping, as Scripture terms it. That their employment in the case of stuttering is not only futile, but injurious and therefore contra-indicated will be pointed out in subsequent chapters of this book.

CHAPTER III

STATISTICAL DATA AND THEIR SIGNIFICANCE

The Lack of Satisfactory Statistical Data. It is by no means an easy task to secure adequately comprehensive and scientifically procured information on the prevalence of defects of speech. The chief difficulty in the way of securing such data is the lack of well-trained persons to make the necessary surveys. The usual type of survey is that which is carried on with such assistance as the teachers in the public schools may be able to afford. As a rule teachers in the public schools lack both the opportunity and the training necessary for making dependable diagnoses of the many varieties of defective speech that are to be found among their pupils. Teachers, moreover, frequently feel somewhat overburdened with statistical reports that seem to them to lie outside the range of their regular duties. Where such an attitude exists it justifies an indifference and carelessness about their reports which will not fail to decrease their value. There are available, how-

ever, a few statistical studies that have been carried on by properly prepared investigators, but these have necessarily been limited in scope.

The Significant Agreement of the Statistical Reports. In spite of the difficulties in the way of securing accurate surveys a considerable amount of information can be obtained from a study of the results of those that have been attempted. Several important surveys have been made in this country. On the whole they show a fair degree of consistency, and are worthy of notice as giving at least some conception of the magnitude of the problem to be dealt with. One of the earliest surveys in this country was made by Conradi. His study embraced Kansas City, Milwaukee, Cleveland, Louisville, Albany, and Springfield.[1] There were in the schools of these cities 87,440 children. He found that 2.46% of these suffered from some form of speech defect. Of the total school population .87% were stutterers. Hartwell is reported to have found that .78% of the children of Boston were stutterers. Westergaard found .61% of the children of Denmark to be stutterers. Lindberg found .9% of the country children of Denmark to be stutterers, whereas .74% of the city children had that defect. His study was quite an extensive one, embracing 212,000 children. Von Sarbo found that in Hungary 1.02% of the children were

[1] *Ped. Sem.* XI, 1904, 327–380.

stutterers. Rouma found that in Belgium 1.4% were stutterers. Blanton reports that among the 5,000 children in the grades in Madison, Wisconsin, .72% were stutterers. Miss Camp found the rather unusual total of 13% of the children in Grand Rapids, Michigan, to have speech defects of some sort. In another connection she reports that surveys made in several cities in Wisconsin show that "from 5 to 7 per cent. of all school children were afflicted with some type of speech disorder." By speech disorder in this survey she means "an abnormality of speech, a pathological state, an inability on the part of the individual to build up certain sounds or to control the speech mechanism."[2] Of the children studied by her in Grand Rapids 2.64% were found to be stutterers. Superintendent Young of Chicago found[3] that in the 260 grammar schools of Chicago there were 1,287 children with speech disorders, the majority being in the primary grades. The maximum number was found in the fourth grade, from which point the number decreased, probably on account of dropping out of school.

Estimated Prevalence of Stuttering Among School Children. If we take the average of these findings, slightly more than one per cent. of the

[2] *Jour. Speech Education* XI, 1923, 280–283.
[3] McDonald, "Adjustment of School Organization," etc., p. 87.

children in the public schools are found to be afflicted with stuttering. With the exception of the figures submitted by Miss Camp, it is seen that the estimates tally rather closely. It is to be remembered that on the one hand a carefully trained person is likely to find speech defects that would escape the observation of the untrained. On the other hand the inexpert may sometimes report defects where none exists. With error operating both ways there is some tendency toward correction. It is the usual experience that there is a greater likelihood that a disorder of speech may be overlooked than that it will be reported as present when it is not. In general, therefore, one may assume that estimates, such as the above, are likely to be too low rather than too high. Applying the estimated total of one per cent. to the school population of the country, we find a quarter of a million school children afflicted with stuttering. To this number one would have to add the considerable number who drop out of school through inability to meet the requirements of the class-room.

Sex Factors in the Causation of Stuttering. A great deal of speculation has been indulged in concerning sex as a causal factor in the production of defects of speech. It has been observed, for instance, for many years that stuttering is far more prevalent among boys than among girls.

Estimates of these differences range from 2 to 1, to 10 to 1. It has been also found that the ratio changes with age, so that the greater the age the greater the preponderance of male over female stutterers. Males, therefore, are more likely to acquire the defect and are much more likely to continue it, once it has been acquired. Wallin found that among the St. Louis children 31.3% of the male stutterers were severe cases, whereas 22.5% of the girls were severe cases. Stuttering is thought by some to be less endurable socially to a girl than to a boy, and hence the severe cases among girls have a greater tendency to drop out of school than is the case with boys.

As to why these sex differences exist, many theories and suggestions have been advanced. A few of these theories will be set forth here, for the purpose of showing how speculative are our opinions still concerning this serious affliction of school children, rather than with any hope of establishing final conclusions.

Differences in the strength of both respiratory and tongue movements have been suggested as possible causes of these sex differences.[4] Males are supposed to have greater strength of respiratory movements, whatever may be their alleged disadvantages in the strength of tongue movements. In so far as the physiological process of

[4] Greene, E., *New York Medical Jour.*, LXIII, 1901.

breathing is causally involved in stuttering, this should be counted as an advantage in favor of boys. But if it has any effect at all it does not appear to operate to the advantage of boys to a degree sufficient to reduce their percentage of defective speakers to that of girls.

Differences in Breathing Types. Differences in breathing types have been mentioned as having causal significance. Women, it is held, formerly developed a thoracic type of breathing, as against the abdominal type characteristic of men, by use of corsets and tight lacing. On the theory that thoracic breathing was both stronger and more subject to control, the practice of it gave women an advantage in speech. The author, in the endeavor to evaluate these theories, undertook to find out whether countries like Japan, where the habits of dress of the two sexes are not so different as they are in countries from which the statistics on sex differences have come, also show more stuttering among males than among females. Through the kindness of the Bureau of Education of Japan data were secured which seem to have an important bearing upon this point. The report secured dealt with 135,852 boys, and 20,637 girls. Among these school children sex differences in regard to the incidence of stuttering seem approximately the same there as in this country. In one prefecture, for example, namely, that

of Yamaguchiken, 5.06% of the boys stuttered, whereas only .16% of the girls stuttered.

If the development of different types of breathing movements has really had any effect in the causation of stuttering, it obviously could only have had to do with the greater tendency of the females to recover from it, since, as is well known, the great majority of cases of stuttering have their onset prior to the age of tight lacing. Unfortunately there are no available studies, so far as the author has been able to ascertain, to determine the average age at which stuttering begins. Many authorities have been found, however, who say that more than 80% begin prior to entering school. This is, according to the author's experience, a conservative estimate.

Stuttering and Hysteria. Brill, who finds that among his patients there are four male stutterers to one female, remarks that this difference is striking in view of the fact that psychoneuroses in general are more common among females than among males.[5] In view of this fact sex differences in reference to stuttering are seen to have a most interesting bearing upon the *nature* of the disorder. Stekel[6] years ago classified it as a form of hysteria, with an anxiety mechanism originat-

[5] *Jour. Speech Education,* LX, 1923, 129–135.

[6] "Nervoese Angszustaende und ihre Behandlung." 11 Aufl., p. 233.

ing in sexual traumata. But here again we note the inconsistency of the theory in connection with statistics, hysteria being far more common among females than among males, whereas the reverse is true in regard to stuttering.

Hereditary Effects of Woman's Environment. Brill [7] submits a biological explanation of the male preponderance in stuttering which affords still another illustration of the speculative character of much of the thinking, or rather guessing, shall we say, about this whole question of stuttering. He says that primitive man in foraging and warring "was forced to scheme, concentrate, and remain silent. To talk much was impossible because deep mental concentration precludes talking, and it would have been dangerous to make himself heard. Modern man differs little in this regard. Present-day competition with his fellow beings demands all his mental efforts and leaves him little time for speech. On the other hand the female animal is passive and receptive, she naturally mates with the most aggressive male, conceives, bears, and nurtures her child until it becomes more or less independent. She has thus developed attributes fitting her for her special tasks. Her sexual demands are entirely different from those of the man, with whom the act of procreation is practically the end aim. To sense the

[7] *Loc. cit.*

needs of the child her perceptions are keener, albeit somewhat superficial. A woman sees, hears, etc., more quickly than a man, but has not the capacity for profound elaboration; she has no need for deep thinking in her constant relations with the simple human being, the child, to whose level she readily descends. Women of today, like their primitive sisters, can cook, bake, crochet, and talk at the same time, and giving so much time to the child with whom she babbles and teaches to talk, she has thus developed her own speech. The preponderance of speech disturbance as a psychoneurotic symptom in males is thus only an exaggeration of a normal activity."

The fallacies and absurdities of this bit of scientific speculation are so numerous and apparent that it seems difficult to assume that it was meant to be taken seriously. In the first place it could only be through the influence of heredity that the supposed life of "deep mental concentration," characteristic of the male of the species, could have any effect on present-day human beings, since during early childhood there is neither the need nor the capacity for the practical thinking that "leaves little time for speech." It is during childhood, mind you, that practically all speech defects have their beginning. And if we assume that the racial customs and habits of life of primitive man can transmit themselves to his offspring

we thereby cut the Gordian knot of the whole question of the transmissibility of acquired characters, and settle *vi et armis* an issue that is at least under investigation among biologists, with the advantage seemingly resting at present in the main with Weismann rather than with Lamarck.

And, moreover, granted that the life habits of primitive man could transmit their effects to his offspring, how could it come about that only his sons and not his daughters would be the recipients of these effects? Brill seems to assume in this queer bit of reasoning that man and woman are separate and distinct species, breeding among themselves and passing on their *acquired* traits in *two separate lines of descent.* This sort of argument was often heard in the early days of the woman's suffrage movement from those who would explain the political ineptitudes charged against women by the accumulated influence of her cramping domestic environment, but one scarcely expects to find an authority in psychiatry making use of it in this connection.

Conclusions and Suggestions Regarding Sex Differences. The upshot of the question of sex differences in their relation to speech defects is that we have no definite and trustworthy data upon which anything like a convincing explanation can be offered. For the present it will be necessary to remain content with reasonable sug-

gestions as to possible causes. It seems that the following suggestions are at least free from such objections as we have noted above: (1) In the first place, it would be reasonable to assume that there are anatomical and physiological differences between the sexes which may play some part in determining their speech differences. The suggestions heretofore offered concerning such differences, however, have been of little value. (2) In the second place the differences in the treatment of and the general social attitude toward boys in the domestic environment may be assumed to produce effects upon personality. The average boy is not so apt to be emotionally adjusted to the purposes and points of view of his parents as is the average girl. Again (3), the wider contacts outside of the home, which are characteristic of the lives of the majority of boys, and their acquisition of knowledge, especially of socially forbidden matters such as sex, bad language and the like, are likely to exaggerate inhibitions, especially those that control speech, the medium par excellence of social intercourse. The inner conflicts of tendencies induced by the various cross-currents of disciplinary forces, as they play upon the growing human organism, constitute well-known factors in the production of emotional maladjustments of a social character similar to those that make up the causal background of stuttering. To assume that

they may have something to do with the sex differences noted in regard to stuttering is, therefore, not without some warrant. It is to be borne in mind that the above suggestions have reference wholly to the rise of stuttering in the life of the individual. The predisposing hereditary factors in the case, except the possible anatomical and physiological sex differences, are not thus to be accounted for.

Relation of Left-Handedness to Stuttering. Another question on which there has been just as much speculation is the relation of stuttering to left-handedness. The speech region of the cortex is located on the left hemisphere in the case of right-handed persons, and on the right hemisphere of left-handed persons. It has been claimed by writers at various times that children who are naturally left-handed and who have been compelled to become right-handed on going to school have begun to stutter as a consequence. It was assumed by these writers that in transferring the center of control of the left-hand movements from the right to the left side of the brain a sort of physiological or mental confusion or inco-ordination might be expected to result.

The data submitted by Wallin in his study of the children in the public schools of St. Louis [8]

[8] Annual Report of the Board of Education, St. Louis, 1915–1916.

seem in part at least to have confirmed the findings of previous investigators on this point. An analysis of his data, however, leaves him in doubt. He found, for example, that of the total school population in St. Louis 2.8% were left-handed. Also 2.8% of the children were found to have defective speech. He also notes that 3.6% of the boys were left-handed, whereas only 2.1% of the girls were left-handed, thus showing a sex difference of the sort noted in the case of stuttering. Of the speech defectives 4.9% were found to be left-handed. By including those who had formerly been left-handed the per cent. was found to be 9.9. These statistics, surely, were legitimate grounds for doubting the widely accepted theory.

Wallin points out, however, that 2% of the school children studied by him have been changed from left- to right-handedness, that is, they were what he calls "dextro-sinistrals." Of these children who had been forced to change from left- to right-handedness only 9.4% were found to show defects of speech. The fact that 90.6% of the children who were thus forced to change to right-handedness suffered no such effects seems out of agreement with the theory as a whole. The number of dextro-sinistrals with defects of speech of any sort was only 6.8% of the total number of speech defectives. Only 9.5% of the stutterers were dextro-sinistrals. If, therefore, the change

from left- to right-handedness had any causal relation to their disorder it could only have affected a small fraction of the total number of cases, and hence would have been of little diagnostic significance. A rule that goes wrong in 90% of cases will *ipso facto* lead one to suspect that certain other causal agencies in the case may have been overlooked. Wallin, as we point out later, found, for instance, that some of his stuttering dextro-sinistrals, who might have been supposed to have been made to stutter by the enforced change from left- to right-handedness on learning to write in school, were known to have been stutterers before entering school.

Ballard, referred to by Wallin, reports that he himself examined only the left-handed children under investigation in his survey, leaving to others the examination of the right-handedness. He acknowledges that if he had examined all the children, the findings might have been different. In spite of such an important source of error Ballard's published findings [9] convinced Terman that he had established "beyond controversy" that changing a child from left- to right-handedness tended to cause stuttering.[10] The discrepancy between what a specialist will find in a speech survey and what the average helper will find, as

[9] "Sinistrality and Speech," *Jour. Exp. Pedagogy*, 1912, 298 ff.
[10] "Hygiene of the School Child," 345–346.

exemplified in Ballard's study, was mentioned as an important source of error at the outset of this chapter.

Parson's Studies of Left-Handedness. A considerable amount of new information on this subject has resulted from the investigations carried on by Parsons.[11] This authority has devised an instrument, the manuscope, by which he can determine whether an observer is using his right or his left eye. The instrument is similar to the ordinary stereoscope in general plan, except that each eye is exposed only to one of the two inserted pictures or letters. When looking at the letters with both eyes open only the one that is exposed to the preferred eye will be seen, the impression on the other eye being suppressed.[12] Parsons takes the position that left-handedness is sequential to and determined by left-eyedness. He finds, however, that a far greater number of people are left-eyed than are left-handed. Those who are congenitally left-eyed are prevented from being left-handed by the necessity of adjusting their motor habits to those of the right-handed majority. In a test of 877 children in the public schools of Elizabeth, New Jersey, he found 29.30%

[11] "Lefthandedness," 185 pp.

[12] A simple way of demonstrating the same thing is to point with the index finger, both eyes being open, at a spot on the wall as if in the act of shooting. By closing first one eye then the other one may ascertain which eye is being used in double vision, and which is being disregarded.

of them to be left-eyed. Of the 608 right-eyed children only 4 were found to be left-handed. Two of these reported faulty vision in the left eye, a consideration which, he thinks, may explain the discrepancy in their case. Of the 257 left-eyed pupils 32, or 12.4%, were found to be left-handed. These and other considerations led Parsons to conclude that left-eyedness is a Mendelian recessive character, right-eyedness being dominant.

As to how many persons per hundred of population continue to be left-handed there is a considerable variation of estimates. Baldwin and Hyrtl say 2, Ballard says 2.7, Lombroso and Jones [13] say 6. Parsons says that 5 persons out of every one hundred acknowledge themselves to be left-handed. When these estimates are taken in comparison with the percentage of left-eyed and therefore originally left-handed persons (29.30), we see that, according to the theory of Parsons, something over one-fifth of the total population must have changed from left- to right-handedness. If to make such a change were as serious a cause of stuttering as previous writers would have us believe, it seems likely that there would be more stutterers than are actually known to exist. To be sure, the change from left- to right-handedness, when brought about through social contact and custom, is a gradual one in com-

[13] All being referred to by Parsons.

parison with the suddenly enforced change exacted of the child by a teacher. It is also true, however, that to learn to write with the right hand need not make a right-handed person out of a congenitally left-handed child. It is possible, and indeed a common thing, to acquire skill in a relatively unskilled member of the body, as, for instance, in the awkward fingers of the left hand in piano-playing, without disturbing the general preference in unilateral motor control. Twitmyer [14] goes so far as to say that it is "impossible to change a congenitally left-handed child into a right-handed child."

If Twitmyer's contention be sound it would mean that the large percentage of changes indicated in Parsons' findings must have occurred in early life. This would bring the change much nearer to the point in child life at which the speech functions are being acquired, and hence would lend added seriousness to it.

Parsons was interested to make manuscopic tests of the children of Elizabeth, New Jersey, on account of the announcement that there was going on in that city in 1922 an "intensive campaign to cure lefthandedness among pupils." The finding that is of peculiar significance in relation to the problem of stuttering is stated in the following excerpt: "Investigation showed that in the four

[14] Quoted by Parsons, pp. 125–126.

years that the policy had been in effect in Elizabeth not a single case of defective speech could be traced to reversal of manual habit. In one or two cases of stammering the change from left- to righthandedness had at first been suspected of causing the trouble; but careful inquiry revealed that the defect unquestionably existed prior to the pupil's entrance into school. As the total public school enrollment at the time this investigation was made was about 15,000, and as practically all lefthanded pupils were made to write with the right hand, this result in a period of four years was impressive."[15] In spite of the above findings Parsons grants the possibility of the rise of *temporary* stuttering in case of an enforced change from left- to right-handedness, but says that such a temporary disturbance will be found to disappear when the process of learning has been completed. He seems to have been led to make this concession by such investigations as that of Claiborne, who reports[16] a case of "stuttering relieved by reversal of manual dexterity." Evidence of this kind need not disturb one's otherwise valid conclusions. The fallacy of reasoning from the character of an effective remedy to the nature of this or any other psychoneurosis will be stressed in other connections.

[15] "Lefthandedness," pp. 102–103.

[16] *New York Medical Journal.* Vol. 105, No. 13, pp. 577 and 619.

Further Evidence from Wallin's Data on Lisping. It was stated at the outset of the discussion of this point that of the school population of St. Louis 2.8% had defects of speech. Of the children who were changed from left- to right-handedness, however, 9.4% were found to have defects of speech. This, on the mere face of the returns, seems to be a weighty point. It looks like a straightforward case of cause and effect. Concerning its bearing upon the problem of stuttering, however, a closer scrutiny will reveal it to be of doubtful significance. It should be noted in the first place that Wallin's method of securing data by questionnaire through the co-operation of the public school teachers made possible a considerable margin of error in that it necessitated their interpretation of what was meant by the several classifications. His definitions are not sufficiently accurate nor mutually exclusive to safeguard all teachers, however careful they may desire to be, from mistakes. For instance, he divides all speech defects, as we have previously noted, into two main groups, namely, stuttering and lisping. Stutterers are defined by him as pupils who "spasmodically or uncontrollably repeat the initial sounds of words (usually consonantal), or who spasmodically repeat syllables or words. This definition, as we have noted (Chapter II) is clinically incorrect, and would therefore be a

source of error in securing statistical data if strictly adhered to. Not all stutterers repeat the initial syllable or sounds of a consonantal grouping of letters. In many cases there is no repetition, but on the contrary a prolonged spastic aphonia. The second group he calls "lispers." Lispers are defined by him as pupils who "are unable to pronounce, or pronounce with difficulty certain letters or combinations of letters." This usage, introduced, we believe, by Scripture,[17] is also misleading in that it is likely to be confused with the commonly accepted understanding of the term "lisping" as applying to a definite type of speech inaccuracy due to the misplacement of the tongue in certain sounds. It might also be easily used by the untrained to include stuttering, which is generally considered to be pronouncing "with difficulty certain letters or combinations of letters."

Of the St. Louis pupils 2.8%, as has been already pointed out, had some form of speech disorder. Of the total number 1.6% were lispers as here defined, while .7% were stutterers, and .4% were affected with some undefined defect. Now, it is quite obvious that lisping as here defined can have no relationship to the transfer of function from one side of the brain to the other. For example, a left-handed child, who, on enter-

[17] "Stuttering and Lisping."

ing school, could pronounce s-u-m correctly, would scarcely be found to pronounce this same word as if it were spelled t-h-u-m after being made to change from left- to right-handedness. Stuttering is the only type of speech defect that could possibly be caused by such a transfer of motor function. The fact, therefore, that the per cent. of speech defects of *all sorts* is the same as that of left-handedness cannot be given any important clinical significance. Dextro-sinistrals furnished 9.5% of all the stutterers found in St. Louis; they furnished also 8.6% of all other speech defectives, i.e., lispers and those in the undefined group. So far as any clinical evidence goes there seems to be no more ground for assuming that the 9.5% of the dextro-sinistral stutterers owe their stuttering to their dextro-sinistrality than there is to assume that the lispers and others owe their defect to it, and this latter is, as we have pointed out, an impossible assumption.

Wallin calls attention to the further fact that many of the dextro-sinistrals were known to have stuttered *before* they learned to write. Of the 65 stuttering dextro-sinistrals 17 are reported to have begun to stutter at or before the age of four; 22 began to stutter during or before their fifth year. No data were secured on the rest. Of those upon whose cases data were secured 81.4%

began to stutter before they were taught to write in school.

Tompkins[18] contends that there is no such thing as right- and left-handedness as ordinarily conceived. There is specialization of each, but the left hand always performs many complicated acts in co-operation with the right; there is a division of labor, but not one-handedness. It is doubtless true that the performance of such complicated acts as those involved in playing the violin or the piano will necessitate as much dexterity upon the part of one hand as upon the other, the attention being more primarily concerned with the function which cannot be trusted to automatic control. By habit, perhaps, we tend to focus attention upon the right hand for the acquisition of skill in new movements. We tend to make left-hand movements automatic as quickly as possible. Hence the left hand plays a sort of accompaniment, though not unskilled, to the leading part played by the right.

Conclusions Regarding Left-Handedness and Stuttering. An examination of the evidence concerning this traditionally accepted cause of stuttering seems to justify the following conclusions: (1) That the act of writing, like any other act imposed by authority upon a child, may constitute the occasion for the rise of pathogenic emo-

[18] *Medical Record,* 1921, 941–943.

tional experiences; (2) Whether there is ground for claiming that there is any unique significance in the act of learning to write with the right hand, or whether the transfer of manual dexterity in writing will of itself shift the entire cerebral center of motor control to the opposite hemisphere, is to be doubted. There is, indeed, an increasing amount of evidence against the hypothesis.

Speech Defects and Race. It was found that among the St. Louis children speech defects were almost twice as common among colored as among white children. Of the colored children 4.8% showed some form of speech defect. Of the white children, taken separately, 2.5% had defects of speech. Of the colored children 1.6% were stutterers; of the white children .6% were stutterers. Lisping was found in 2.6% of the colored children, and in 1.4% of the whites. Stuttering was found to be three times as prevalent among the white boys as among the white girls; it was only twice as prevalent among the colored boys as among the colored girls.

The author holds that these differences cannot be explained by reference to any anatomical or physiological or even intellectual differences between the white and the black children. On the contrary they seem interestingly confirmatory of the principle of explanation which has been stressed in this book, namely, that of social con-

sciousness. It is obvious that where there exists a sense of social inferiority, and where a socially inferior group comes into contact with a socially superior one there is an increased liability for the exaggeration of just such morbidities of social consciousness as we have time and again found to lie at the bottom of that peculiar emotional experience that conditions stuttering.

Stuttering and Mental Defect. It has been found by several investigators that stuttering is more prevalent among mentally defective than among normal children. Wallin found that in St. Louis more than one-fourth of the pupils in the special schools were reported as having some form of speech defect. The speech defects of all kinds in these special schools were more than ten times as prevalent as they were among the normal children in the white elementary schools. The ratio of severe to mild disorders of speech is greater among the special classes than among the normals.

Looking at statistical correlation alone one would be led to conclude that there is some causal relationship between mental deficiency and speech defects. There is a large group of developmental inaccuracies of speech concerning which this conclusion would hold, but clinical evidence will not sustain the conclusion that stuttering, or dysphemia, is a pathognomonic symptom of mental

defect. On the contrary many have observed that the stuttering child is apt to be a highly organized, sensitive, alert-minded member of his group. To say the least, there are too many mentally capable stutterers on record to admit of accepting the usual inferences from the correlations easily derived from statistics on the prevalence of stuttering among the mentally defective. Havelock Ellis in his investigations of British genius, for example, found [19] that "Among the nervously abnormal classes stammering and allied speech defects occur with especial frequency. This is notably the case among mental defectives. Thus in Berlin, Cassel found that 33.5 per cent of defective children showed infirmities of speech, and Dr. Eicholz, a London school inspector, states that 'quite 75 per cent of defective children speak imperfectly, ranging from complete aphasia to a mere indistinct thickening, including stammering, halting, lisping, word-clipping, mis-pronunciation, and the mainly purely vocal imperfections.' "

And yet in the same connection (p. 177) he has this to say concerning the prevalence of stuttering among men of genius: "Among the minor forms of nervous derangement stammering is of very great significance. I have ascertained that at least thirteen of the eminent persons on my list (twelve men and one woman) stammered.

[19] "A Study of British Genius," p. 179.

These were Bagehot (?), R. Boyle, Curran, Croker, Erasmus Darwin, Dodgson, Mrs. Inchbald, C. Kingsley, Lamb, Maginn, Priestley, Sheil, Sidgwick. Seven others were noted as having defects of speech which are sometimes stated not to amount to a stammer, but in other cases were doubtless ordinary stammering. When it is remembered that the normal occurrence of stuttering among adults is much below one per cent and also that my record is certainly very incomplete, it will be seen that there can be no doubt whatever as to the abnormal prevalence of stammering among British persons of ability."

As in case of the race differences noted above, so in that of the mental defective, the real causal factor must be sought in the difficulties of social adjustment. In this case, as contrasted with that of the race handicaps of the negro children, the difficulties are due to inability to meet social requirements by reason of mental deficiency. The sense of inferiority operates in the same way whether due to traditional race relations or to the realization of personal inferiority. That mentally deficient children realize their incapacity is well known to those who have experience in teaching them. One of the problems connected with dealing with them is to give their minds relief from the paralyzing sense of inferiority. Those who teach defective children recog-

nize it as part of their task to give generous praise regardless of the quality of work done. The evidence seems conclusive that social sensitiveness is a causal factor of major importance in the case of stuttering among normally intelligent children. There seems no valid reason to suppose that this cause is not also operative in the case of the mentally defective. It seems necessary, therefore, to conclude that this morbid social sensitiveness, and not mental deficiency *per se,* is responsible for the high correlation between mental defects and speech defects found by Wallin.

Defects of Speech and Pedagogical Retardation. Another aspect of this same question comes out when we note the relation between pedagogical retardation and defects of speech. Of 601 speech-defective children found in the schools of Hamburg, Germany, the majority were found to be one year behind in grade.[20] According to this study the retardation becomes greater the higher the grade. For example, 50% of the children in their fourth school year were behind; 65% of those in their fifth year were behind; 77% of those in their sixth year were behind. It was also found that 20% of those in their seventh year in school were below the fifth grade.

Westergaard found from a study of 34,000 Danish children that there was retardation up to

[20] See Wallin's report, p. 199.

the fourth grade, but that in the fifth and seventh grades the ages were about equal to the norm. Conradi's study of children in certain American cities was corroborative in the main of that of Westergaard. The average age of stutterers in the first grade was 7.1, in the second grade it was 8.2. Retardation is greatest in these two grades. The average ages for the other grades from the third to the eighth were, in order, as follows: 9.7, 10.9, 11.9, 12.9, 13.3, 14.6. It is thus seen that from the third to the eighth grades, inclusive, the average amount of retardation is less than a year, and in these years it is also less than in any year except the first two years of school.

The condensed table of the amount of retardation expressed in terms of years which Wallin found in St. Louis is as follows:

	Boys	*Girls*	*Both (White and Colored)*
Stutterers	1.6	1.6	1.6
Lispers	1.2	1.0	1.1

The distribution of the numbers retarded and the extent of retardation are expressed in the following simplified table covering both sexes and both races:

Stutterers:	*Number of Cases*
Retarded 0 years	97
" ½ "	5
" 1 "	219
" 2 "	165
" 3 "	73
" 4 "	29
" 5 "	11
" 6 "	3
" 7 "	2
Accelerated 1 year	8

Lispers:	
Retarded 0 years	467
" 1 "	440
" 2 "	247
" 3 "	105
" 4 "	43
" 5 "	16
" 6 "	4
" 7 "	1
" 9 "	1
Accelerated 1 year	6

Mispronunciation as an Accompaniment of Other Defects. It should be kept in mind that lisping as Wallin defines it, i.e., as defect of pronunciation, is a condition that is more likely to

be an *accompaniment* of causes which themselves produce pedagogical retardation than to be a cause of the retardation. Many forms of "lisping," according to his terminology, are known to be due to slow development, and it is this slow development and not the lisp itself that is responsible for the retardation. Children who lisp can always lisp, and in all except extreme cases can make themselves understood in class. There is, therefore, no insuperable difficulty in the way of successful recitations upon their part. It is quite different with the stutterer. Where stuttering is the idiopathic or original condition it seriously interferes with speaking and consequently makes recitation difficult and in many cases wholly impossible. The severe emotional accompaniment of unsuccessful attempts at recitation, and the social exposure attendant upon such failures, to which we force stuttering children to submit, also make it impossible for the stuttering child to think normally. Their minds are frantically active, not about the lessons under consideration, but about the—to them—more pressing problem of talking. The inhumanity, in this day of humanitarian solicitude for children, of expecting a child with a thumping heart, burning cheeks, and tear-filled eyes to think successfully before a snickering class passes understanding. Many such children say

that they do not know the answers to the questions asked them by the teachers rather than risk the danger of an embarrassing failure. The wonder of it is, therefore, that they are not pedagogically retarded to a greater extent than they have been found to be. That certain studies have shown the extent of retardation to be greatest in the lower grades points probably to the fact that the severe cases drop out. Stutterers who are willing to pay the fearful price exacted of them for the privilege of going to school are likely to be both earnest and capable.

The Number of Stutterers as Compared with That of Other Exceptional Types. We come finally to compare the number of stutterers with the number of other defectives, for whose needs it is taken for granted that public provision must be made, in order that we may appreciate by comparison the public neglect of stutterers. If the school population can be taken as a fair sampling of the general population as to the prevalence of defective speech, a rough estimate of the total number may be made. As to whether the school population constitutes such a fair sampling several things must be noted. In the first place children may acquire stuttering in school, and thus add to the average found in the school population. On the other hand it is the general verdict that the

majority of cases of stuttering begin in the preschool years. And further, as it has already been pointed out, severe stutterers tend to drop out of school. Hence, everything considered, there are reasons to believe that the percentage of stutterers in the school population is lower than it is in the general population. But if we consider it the same and apply to the general population the average of the estimates referred to above, i.e., 1.03%, we see that there must be about 1,133,000 stutterers in the United States.

There is another way in which this approximation can be arrived at. If we are right in assuming that the school population constitutes a fair sampling of the general population, and if we think of the stream of children as they pass through the grades in terms of a frequency curve showing the number of stutterers in each grade, we should be justified in taking this curve at its highest point as indicating the percentage rate that we may apply to the total population to secure the number of stutterers in the country. The number thus arrived at would constitute a cross-sectional view of the prevalence of stuttering at the age of its highest frequency. As to what these ages are we may form an estimate by reference again to the statistics of Wallin. For boys his highest frequency, namely 1.4%, was found in the fourth grade. For girls the highest percentage

was found in the second year of high school, where it was .8%.[21]

Applying this maximum percentage of 1.4 to the total male population of the country, estimated as 55,000,000, we get 770,000 males who at some time in their lives have been stutterers. Applying the maximum percentage rate for females in the same way, we get a total of 440,000 females who at some time in their careers have stuttered. Adding these two totals together yields a grand total of 1,210,000 persons who *have* or *have had* this affliction. This calculation is based upon an estimate of what we have reasons to believe would happen if the entire population were passing through school. When any section of the procession of boys reaches the fourth grade, there 1.4% of them will be found to stutter. When any section of the procession of girls reaches the second year of high school, it will be found, according to Wallin's data, that .8% of them will stutter.

It is not so difficult to get statistical data regarding other types of defectives as it is to get them regarding stutterers, because, in the first place, of the simplicity and certainty of diagnosis, and, secondly, because of the lack of spontaneous

[21] There is an increase in the number of stuttering boys in the third year of high school, but this increase is not sufficient to make the number at this point equal the number found in the fourth grade. Since adolescent changes, especially as affecting social consciousness, are operative here, it may be that they are a determining factor in the production of these fluctuations.

recovery, which is common among stutterers. The most recent government bulletins (those of 1920) state that there are 52,567 blind persons in the United States. There are also, according to the same reports, 44,885 deaf-mutes in the United States. These figures give a total of 97,452 for these two groups. Now if we disregard the above estimate concerning stuttering which we have applied to the total population and take only the average percentage found in the school population we will find that there are 247,200 children in the United States who actually *have* the disorder. This, as can be seen, is more than two and a half times as many as the blind and the deaf-mutes combined. If we remember that the census reports apply to the total population and not to the school population alone, as does the estimate of 247,200 stutterers, and if we accept the estimate of the number of stutterers in the total population offered above, we will have to face the astonishing conclusion that there are more than ten times as many stutterers in the United States as there are of the blind and the deaf-mutes.

With these statistics in mind it will be interesting to ask what has been done at public expense on behalf of stutterers as compared with other types of defective persons. It was not until 1908 that the public schools made any effort to meet

the needs of children of this sort who were in the public school systems of the country.[22] Since that date an increasing number of school systems have provided special teachers and classes, types of which are to be described in subsequent chapters. How inadequate these provisions are to meet even approximately the existing needs we are made to feel in the reports of the persons who are doing the work. That the efforts are not only pitifully inadequate but are in many instances based on incorrect hypotheses as to the nature of the trouble to be dealt with we have already made the attempt to show. So far as can now be ascertained there are no publicly maintained *institutions* for the care of speech defective cases. To mention the need of such institutions would cause a shock of surprise; to the custodians of school funds it would be disconcerting. And yet as long ago as 1916 there were in this country 576 institutions for the feeble-minded, the insane, the criminalistic, the epileptic, the blind and the deaf.[23] The property valuation of these institutions was $408,542,752. The operating cost was then $81,048,990. Since those statistics were compiled many institutions have been added. Now only four states have failed to provide institutions for the feeble-minded.

[22] McDonald, Columbia Univ. Contributions to Education, No. 75.

[23] Statistical Directory, Bureau of Census, p. 7.

It is not to be inferred that less should be expended upon these than we are now expending. On the contrary it is doubtless true that more money might with economy be spent if it were spent wisely. It is not that we ought not to have done this, but that we should not have left the other undone.

CHAPTER IV

THEORIES CONCERNING THE NATURE AND CAUSE OF STUTTERING

Physical and Physiological

Opinions Still Differ Concerning Both the Nature and the Cause of Stuttering. When one investigates the evolution of the theories concerning the etiology of stuttering, it seems difficult to think of any other subject that so concerns the welfare of human beings about which there has been so much speculation and so little of advancement in real understanding. Concerning a disorder that is as prevalent as stuttering, one surely has reason to expect a better understanding than one finds at the present time. Most of the physical diseases that plagued our ancestors are now understood; some of them are in process of elimination. Others formerly not known to have existed have been discovered, and in turn have been mastered. But concerning the diagnosis and treatment of this ancient malady we are about as much at sea as were the Greeks

when Demosthenes endeavored to relieve himself of it by speaking with a pebble under his tongue. Even yet there is much discordance of claims concerning professional responsibility in the case. And while such conflicting claims are being voiced the stutterer himself must continue to wait, though he is, of course, quite indifferent as to who should be expected to bring him relief.

The Need for Division of Labor in the Study of Stuttering. One of the purposes of this book is to offer a contribution in the form of a psychological study of this subject. Psychiatrists in increasing numbers are pointing out that "the difficulty is primarily psychological."[1] The duty of taking scientific cognizance of the subject can therefore not be avoided. The attitude of Dr. Greene concerning this question has already (p. 9 ff.) been mentioned. Scripture, whose work in this field the author has followed with interest for some years, takes an equally positive stand. He says,[2] "The treatment of stuttering is a medical affair, and can be handled only by a medical man." Numerous declarations of similar import could be cited from other writers on the subject. These declarations are recognized as expressions of individual viewpoints. In so far as they are intended to discourage the exploitation of stutterers

[1] Quoted from Blanton's "Child Guidance," p. 110.
[2] Lancet. Vol. 204, 1923, p. 750.

by unscientific individuals with empirical remedies for sale, the author is in entire sympathy with them. Also he fully sympathizes with the desire to interest medical authorities in the problem. Each year he presents the subject in as thorough a way as possible to the medical students to whom he lectures. In the average community the physician is apt to be the first person sought by a parent in distress over a stuttering child. Physicians should therefore be qualified to do something more than to treat such children for nervousness, or to tell their parents that they will "grow out of it."

The chief damage to be done by the authoritative reiteration of exclusive claims to the subject is that it tends to discourage others, especially psychologists, who as a group have been even more indifferent toward the question than have the medical authorities, from interesting themselves in it. Indeed all persons who have children under their care are encouraged by such declarations to wash their hands of all responsibility for conditions of this sort.

The chief *error,* scientifically speaking, of assuming a one-sided position regarding the matter of professional jurisdiction is that it carries with it, by implication, presuppositions regarding diagnosis and treatment which may not be justifiable. That no such final conclusions regarding diag-

nosis and treatment have as yet been reached, Dr. Scripture himself may be called to witness. He says,[3] "Stuttering or stammering is usually regarded as incurable, and not more than 5 per cent. of treated cases ever fully recover, for the pathology of the disease (!) has never been established, and no rational methods of treatment have been found."

In this chapter it will be of interest to outline certain older theories concerning the etiology of stuttering, which were framed in harmony with the familiar categories of medicine. In subsequent connections attention will be called to the gradual transition from these concepts to others that are more familiar to the student of abnormal psychology. This transition, it should be noted, has occurred chiefly in connection with stuttering. In the case of aphasia, brought about, as it is, by organic brain diseases, injuries or anomalies, medicine has and has ever had exclusive obligations. The interest which psychology may have in such conditions is incidental to its interest in the question of cerebral functions. Incorrect or defective speech (paraphemia), whatever may be its cause, is of interest to psychology by reason of its bearing upon the question of habit, motor coordination and control, and education in general. The third group of disorders of speech, as herein

[3] *Ibid.*

classified, namely, dysphemia, has not been successfully explained in terms of permanent organic or physiological conditions, and on the other hand it is not to be counted as mere defect of speech, or faulty enunciation (paraphemia). Rather is it to be conceived as a morbidity of emotional reactions of a specific sort, resulting in an intermittently appearing inability to talk in certain social situations. It is with this defect that the present book will deal. To deny abnormal psychology the right to deal with mental materials of this sort would be tantamount to denying to it the right of existence. It is recognized that thus to define stuttering is to beg the main question regarding etiology, according to the viewpoint of extreme organicists, who in some instances hold to the opinion that all human abnormalities rest upon a background of organic causation. Such extreme points of view, however, are in the minority, and are decreasing in number.

The Phenomenon of Stuttering Has Long Been Known. Stuttering, or dysphemia, has a history that dates back at least to the ancient Egyptians. The word for stuttering, we are told, has been found in the hieroglyphics. The phenomenon was familiar to the ancient Greeks. Mankind seems to have begun to struggle with it as soon as human beings began to talk. Theories concerning its nature and its causes, as well as remedies sug-

gested for its relief, have been very numerous. It will be worth while to give at least the most important historic changes in the development of scientific opinion regarding it, in order to afford some perspective to our present approach.[4]

It Was Originally Assumed to be of Physical Origin. The organicists, behaviorists, or mechanists of the present who write on this subject will have no difficulty in establishing the historical succession of their claims. The present-day organicists will have no apologies to make for departing from ancestral faith, at least so far as the fundamentals of their theories are concerned. The later organicists differ from the earlier ones only in regard to the particular organ to which the difficulty is referred; it is upon an organ in each case that the blame for the malady is made to rest. The ancient organicists assigned its seat to the peripheral organs, especially those of articulation. Of these the tongue was naturally considered the chief offender. The present-day organicists have made a strategic retreat inward and have fortified themselves in the less accessible intricacies of the microscopic anatomy and the physiology of the brain.

Celsus, who practiced medicine in Rome prob-

[4] For data concerning this aspect of the question, see Hudson-Makuen, "A Brief History of the Treatment of Stammering," *Penn. Med. Jour.*, 1909; Hunt, "Stammering and Stuttering," 1906, 182 pp.; Wyllie, "The Disorders of Speech," 1894, 495 pp.

ably during the reigns of Augustus and Tiberius, and who was called the Hippocrates of the Latins, seems to have interested himself in stuttering. He prescribed for it as follows: "When the tongue is paralyzed, either from a vice of the organ, or as the consequence of another disease, and when the patient cannot articulate, gargles should be administered, of a decoction of thyme, hyssop, pennyroyal; he should drink water, and the head, the neck, mouth, and the parts below the chin be well rubbed. The tongue should be rubbed with lazerwort, and he should chew pungent substances, such as mustard, garlic, onions, and make every effort to articulate. He must exercise himself to retain his breath, wash the head with cold water, eat horse radish, and then vomit."

Surgical Operations Were Performed to Cure It. In harmony with the organic conception of the nature of the trouble, surgical operations of various sorts have been practiced. Galenus, who died in A.D. 200, practiced cauterization. Yearsley and Braid of England as late as 1841 operated on the tonsils and the uvula as a means of relief. At this late date there were a host of operators in France, where in one year some 200 people were thus treated. A sort of rivalry, even, seems to have sprung up among the surgeons for the honor of inventing new kinds of operative procedure. Almost every muscle of the tongue seems in its

turn to have been cut, in the hope that the seat of the trouble might be located. The hypo-glossal nerve was severed, the tongue was pierced with hot needles and blistered with embrocations of Croton oil. The lingual frenum was severed in the belief that it interfered with normal tongue movements. In 1841 Dieffenbach published a book[5] in which he claims to have treated stuttering successfully by cutting a transverse slice out of the tongue, and sewing it up, thus making it shorter, as contrasted with those who had practiced cutting the lingual frenum with the view to making it longer. The success which Dieffenbach claims to have had with this drastic treatment can be explained only upon the basis (1) of suggestion and (2) of distraction, the latter factor being no doubt very effective during the painful period of the healing of the wound. The enthusiasm for operative interference seems to have spread to American surgeons in New York, but the method was abandoned by them rather quickly.

Sedatives and Drugs Were Administered for Relief. Gregoire in France recommended smoking as a sedative to the vocal cords. Gerdts of Germany administered tincture of peppermint oil and chloroform in the attempt to allay the spasms of the diaphragm, which he conceived to have been

[5] "Die Heilung des Stotterns durch eine chirurgische Operation."

the cause of the difficulty. A bewildering variety of preparations were applied in an ingenious variety of ways, always, at this stage of opinion, with the expectation of locating the seat of the trouble in the periphery.

Hunt describes a publication issued in 1584 in which the author departed from the theory held by Hippocrates that stuttering was due to "dryness of the tongue" and suggested that it was caused by a "moist and cold intemperament," and recommended that the head be dried by cauterization and blisters; that salt, honey and sage be rubbed on the tongue, and that the diet should be regulated by the use of salt, spicy, and heated foods.

Modern Suggestions Concerning Organic Causation. Perhaps one should add to the ancient list of theories concerning the organic background of stuttering certain more recent theories along that line. A. A. da Costa Ferreira speaks in the Belgian Archives of Medicine, 1919 [6] of "stuttering of endocrine origin." A certain American authority on stuttering has also claimed to connect the disorder with endocrine disturbances, though the author has been unable to secure from him a definite statement of his position in regard to the matter and is therefore unable to quote him. Until further informed the author will assume that in

[6] Referred to in *Jour. Amer. Med. Ass'n.*, v. 73, p. 1963.

these conditions one is dealing merely with predisposing causes. In the case of stuttering as in that of other similar psychoneuroses it is to be borne in mind that the variety of such causes is considerable. There are many records of cases of stuttering, dating back to various forms of the diseases of childhood. Nervous instability, excitability, or irritability, whether inherited or acquired through disease, shock or emotional strain, will afford a diathesis favorable to the rise of stuttering, though such conditions are by no means always attended with that disorder. Experiences of sudden fright by children, just as severe "shell shock" experienced by soldiers in the World War,[7] have in many recorded instances paved the way to stuttering.

Of similar import, in the opinion of the author, is the suggestion by Starr[8] concerning the "metabolic etiology of stuttering." Until successful remedies have been devised which are based upon the diagnosis of stuttering as a glandular or metabolic disturbance, it will continue to be necessary to regard all such disturbances as sequential to the abnormalities of function. So far no such remedies have been proposed.

[7] Southard, "Shell Shock and Neuropsychiatry."

[8] Starr, Henry E., "The Hydrogen Ion Concentration of the Mixed Saliva Considered as an Index of Fatigue and of Emotional Excitation, and Applied to a Study of the Metabolic Etiology of Stuttering." *Amer. Jour. Psychol.*, 1922, 33, 394–418.

The Origin of the Physiological Theory of Stuttering. The anatomical conception of stuttering and the surgical and medical treatment based upon this conception having failed to yield expected results, the forms of treatment took a physiological turn, and paved the way for the conception which is perhaps the most commonly accepted one of the present. It is this conception, moreover, that underlies and justifies the physiological drill methods of treatment so common in the speech correction classes of our public school system.

"The American Cure." In the earlier and cruder forms of this theory attention seems to have centered upon a particular organ or groups of organs, the inadequate functioning of which was thought to have caused the trouble. As an illustration of this we have what was called the "American method" of treatment, which was "discovered" in 1825 by Mrs. Leigh of New York. She seems to have been called upon to treat a case of stuttering, and in the course of her efforts to bring about a "cure," she stumbled upon the observation that the stutterer pressed his tongue against the lower incisor teeth in his efforts to talk. Instantly she seized upon this as the cause of the trouble, and drew the conclusion that the remedy for stuttering would be simply to change this situation by pressing the tongue against the

roof of the mouth instead of pressing it against the teeth. Not realizing that this form of tongue movement in her patient was but one of many kinds of accessory movements found in almost unending variety among stutterers, Mrs. Leigh put her "cure" on the market. The Frenchman, Malebouche, is said to have paid a large sum for it. In the Netherlands and in Prussia the governments gave those who knew and could use the secret professional standing at public institutions. Naturally the "American cure," whatever may have been its financial success, did not survive.

Becquerel's Breathing Theory. Becquerel, writing in 1847,[9] represents those who hold the same general type of theory, only he lays emphasis on the abnormality of breathing as the sole cause of the trouble. Prior to this, i.e., in 1828, Dr. McCormac had announced the same conclusion as a "discovery," which would not only be a most welcome relief to the afflicted, whether rich or poor, but would at the same time take away from medicine the opprobrium of ignorance of this subject which had rested upon it until his "discovery" was made.

Itard, Carpenter, Hunt, Kussmaul, A. and H. Gutzmann, Wyllie, A. G. and A. M. Bell are among the number of those who adhered to the physiological conception of the disorder, but they saw

[9] "Traite du Begaiement."

in it the abnormal functioning, not of any single musculature, but an asynergy of one sort or another between the several systems of musculature involved in speaking.

Mental Factors Were Deliberately Ignored by Older Authorities. Some of the older authorities who espoused this point of view deliberately ignored the mental aspects of the problem. H. Gutzmann, for example, adheres to the strictly somatogenic theory of etiology,[10] and describes it as an inco-ordination neurosis, due to congenital weakness of the speech apparatus. Gutzmann, like all the rest of those who have had theories as to cause and who have worked out treatments based upon these etiological theories, had considerable success in treatment. It has been most unfortunate for the stutterer's welfare that his malady has yielded to such an endless variety of treatments. It might have been better for him if he had not reacted favorably to such a variety of "cures." Those who are wedded to a certain method of treatment are hard to convince that their method is wrong so long as they are getting satisfactory results from the use of it. It is, however, one of the distinguishing marks of a psychogenic disorder that it will yield to illogical treatments, even to treatments that are mutually

[10] "Ueber psychogenen Sprachstöerungen." Monats. füer Spracheilkunde, XX, 1910, 93–94; 97–117.

inconsistent. The very materials of this and the succeeding chapter should make this point apparent.

The Theory of Mental Cause with Physiological Treatment. There are others among the physiological school of opinion, however, who, while admitting the causal significance of mental states, adhere to remedial programs that are inconsistent with a psychogenic theory of the causation of stuttering and can only be based upon a physiological conception of it with consistency. Hunt, for instance, says [11] that the exciting cause is "in the mind," and yet he contends that if the victim expects to get relief "he must be made to concentrate his attention to the main source of his impediment, whether the fault be in the action of the respiratory, vocal, or articulatory apparatus." [12]

G. Hudson-Makuen, the Philadelphia laryngologist, who was for many years one of the most actively interested medical authorities in this field in America, arrived at the conclusion that the cause of stuttering must be in the psychic realm, but he too insists on a strictly physiological program of relief. He says that the remedy lies in "correcting the physical habits" and in drilling in the proper processes of speech.[13]

[11] *Loc. cit.*, p. 140 f.
[12] *Loc. cit.*, p. 144.
[13] *The Laryngologist*, November, 1910.

Drs. Kenyon, Kyle, McCready, and Dercum are other American physicians who agree with his position. All of these latter authorities agree also in the contention that the problem is essentially a medical one. This group of authorities, it is noted, center their attention upon the peripheral processes of speech, as previous medical authorities had centered their attention upon the peripheral *organs* of speech.

To this school of opinion should be added the name of Dr. Frederick W. Martin, formerly head of the Department of Speech Correction of the New York City Board of Education.[14] He recommended (1) voice drill, (2) syllabication, (3) tongue drill, (4) silent reading and reading aloud before a mirror.

Since this point of view is still widely held, and since, as we have noted, the essential features of the theory constitute the sole warrant for the procedure now in vogue in many of the speech correction classes in our public schools, it will be worth our while to examine it somewhat critically.

Defects in the Physiological Theory of Stuttering. There are certain important psychological factors in the phenomenon of stuttering which seem to have escaped the notice, or at least have not been incorporated into the therapeutic practices of this modern physiological school of

[14] *Quarterly Jour. Speech Educ.*, V, No. 3, May, 1919.

opinion. The factors in question seem to the author to be these:

(1) If, as these authorities generally assume, we have in this disorder a mental background of causation, expressing itself in abnormalities of speech processes, to disregard these acknowledged causes and center relief measures on peripheral symptoms, can scarcely be commended as an approved procedure in therapeutics, whether of mental or of bodily ailments.

There is, to be sure, a group of defects of speech for which the physiological method of treatment is definitely to be prescribed. This is the group which we have designated defects of pronunciation or paraphemia in our chapter on classifications. The child who has a lisp, a post-operative distortion of articulation, or a left-over infantilism, for example, *needs to be taught how to speak correctly and to have his speech habits established by suitable corrective drills.* The case is wholly different with the stutterer. It is not that he exhibits mere inaccuracies of speech. *One cannot say that he does not know how to speak correctly. Rather is he, under certain circumstances of a social character, hampered in speech, and in severe cases unable to speak at all.* The effect of the social situation upon the stutterer's ability to talk will be stressed in a subsequent chapter. Suffice it to say here that, granted the validity of the

claim, it would render obviously untenable the conception of stuttering as a mere physiological inco-ordination.

(2) In the second place, to be content to tamper with the physiological symptoms of stuttering will tend to distract our attention from the less conspicuous, but vastly more important, factors that underlie it. Reed is evidently right when he says [15] that it is diagnostically misleading to classify stuttering as a "defect of speech." That the underlying factors in its causation are of psychological character is the verdict of the overwhelming majority of writers of the present, and is the point of view advocated in this book. That the emotional reaction which is responsible for the immediate provocation of stuttering is aroused by social excitants, that it is conditioned, or acquired, and is not due to any inherent weakness of the speech apparatus, that it is specifically related to the experience of *talking,* not to mere *sound-making,* that it is not merely a symptom of "nervousness," are items of symptomatology to be discussed later.

The evils that grow out of the use and the sale of patent medicines grow in the main out of two logical fallacies: (1) In the first place there is the error just mentioned of centering attention upon symptoms to the disregard of underlying causes,

[15] *Jour. Abn. Psychol.,* XVI, 161–167.

and (2) in the second place there is the equally fallacious custom of evaluating the soundness of a treatment by the results that come after its employment, i.e., the *post hoc ergo propter hoc* thinking. It takes only a glance at the history of the treatment of stuttering to appreciate how rampant these two evils have been. Is it not time that we insist on being as scientific here as we are elsewhere in our methods of relief of human suffering?

(3) There is still another ground of objection to the physiological theory. Bonnet has pointed out[16] the distinction between stuttering and convulsive tics, with which it has sometimes been confused. The fixation of attention on a tic movement, he says, as we will point out elsewhere in this book, increases the possibility of volitional control over it, whereas in the case of stuttering the reverse is true. Distraction of the attention of the stutterer from speaking tends to relieve him, while speech-consciousness accentuates his difficulty. The torturing surgical operations of the olden days, as well as the many illogical devices on sale at the present time in private institutions, such as beating time, counting, etc., can easily be seen to owe whatever efficacy they may have had to

[16] "Etude critique sur la parente morbide du bégaiement," etc., 168 pp.

their effectiveness in distracting the stutterer's attention from his speech.

Now it is obvious that the physiological drill method proceeds in defiance of this fact in that it *centers the attention of the stutterer upon the functions of speech,* so that his speech-consciousness, instead of being relieved, becomes accentuated. Reed has seen and has called attention to this error.[17] He says "all attention directed toward the mechanism of speech in itself is definitely contra-indicated," i.e., it is precisely the thing that should never be done. Brill has also drawn the same conclusion.[18] Blanton, after some years of experience in handling disorders of speech, has also reached this conclusion.[19] He says, "I have always maintained that the use of tongue gymnastics and articulatory exercises in the treatment of stuttering was harmful, and I have become convinced that the use of breathing exercises and of vocal exercises in the treatment of stuttering is also harmful,—at least in most cases."

(4) Finally it is to be said that the physiological conception of stuttering, with the drill method of treatment growing out of it, rests upon a misunderstanding of the psychology of speech in

[17] *Jour. Abn. Psychology,* XVI, 1921–1922, 161–167.
[18] *Jour. Speech Educ.,* April, 1923.
[19] *Jour. Speech Educ.,* X, 1924, p. 39.

general. Speech involves a relational form of consciousness and is a response of this relational consciousness to a relational or configurational situation. It is not an employment of the abstract elements of sound production to a meaningless sound receiver. Carlyle's description of prayer as "spitting mouthfuls of articulate wind at the Lord," however apt a description it may be of many kinds of prayer, falls short of being an adequate description of human speech. If speaking were just "spitting mouthfuls of articulate wind" at an auditor there never would have been such a thing as stuttering. Even after acquiring the defect the victim can emit all the isolated sounds required in speech, though he is incapable of connected speech. The abstraction of the mere processes of speech from their social promptings and social purposes or objectives is unwarranted and misleading. Such abstractions and analyses are tolerable only for purposes of description. To avoid the fallacies arising from the use of them one must keep ever in mind their abstract character.

The stutterer would be vastly better off if those who have attempted to treat his case could have become oblivious of the sounds and sputterings emitted by him and could by some mysterious trick have been enabled to perceive his inner emotional disturbances. It is with these that we must

deal if we would avoid the error of doctoring symptoms. The central purpose of this book is to present the problem of speech pathology in its wider connotations, and to call attention to the serious error of conceiving it wholly in terms of the physiology of speech. The stutterer does not need the services of a mere teacher of elocution or public speaking. Only those who are capable of dealing with his complex inner processes of thought and feelings are in position to handle his case with success.

CHAPTER V

THEORIES OF CAUSATION (Continued)

Psychological Theories

The last group of authorities referred to in the previous chapter—those who acknowledged the presence of mental factors of causation, but who adhered to a strictly physiological approach to methods of treatment—represents a period of transition. Their diagnosis had pushed them inevitably into the mental sphere in the search for the seat of the trouble. But, while they knew something about how to apply physiological correctives, the art of effecting mental adjustments was unknown. It is, for that matter, still in its infancy. To meet the needs of this situation two forms of mental correctives arose. One of these came directly out of the structural psychology that prevailed a quarter of a century ago, and that rested, so far as its explanation of behavior was concerned, upon the ideo-motor theory of volitional control, or the theory of dynamogenesis of ideas. The other psychological approach to

this problem came in the wake of Freudianism, and is genetically related to and patterned after the procedure of hospital and clinical practice in medicine, especially in its use of the mental surgery methods of psychoanalysis. We must here briefly describe these two important points of view.

It was as a form of aphasia, such as Hoepfner appears to have had in mind,[1] that the imagery advocates, or structuralists, seemed to have conceived stuttering. They do not, however, think of it as ordinary aphasia due to organic lesions or anomalies. Rather do they regard it as a functional deficiency, based probably upon organic inadequacy. It is not permanent, but transient, and is subject to educational alterations.

The Verbal Imagery Theory of Bluemel. The first advocate of this point of view in this country, so far as the author knows, was Bluemel, who set forth his theory in his two-volume book, "Stammering and Cognate Defects of Speech." The thesis which he proposes is that the "stammerer's (stutterer's) difficulty is transient auditory amnesia."[2] The ideo-motor theory of action could not find a more point-blank statement than is here given as the gist of Bluemel's psychology of speech. He says,[3] "The verbal image

[1] "Zeits. f. Pathopsychologie," I, 1912, 449–552.
[2] *Loc. cit.* 1, p. 187. [3] *Ibid.*, p. 281.

is paramount in determining the nature of the words expressed; hence if no clear-cut verbal image is in the mind, no word can be orally produced. It is no more possible for the speech-organs to produce a word that is not clearly expressed in verbal imagery than it is possible for a gramophone to produce words that are not present on the record. The gramophone reproduces words as they are spoken into it; the speech organs reproduce words as they are dictated by the verbal imagery. The verbal imagery is absolute."

The experimental data upon which Bluemel appears to have based his theory seem to have been derived from the use of the questionnaire method. He made out a list of 39 questions, such as are common to investigations of this sort, upon the answers to which he proposed to judge the quality of imagery characteristic of the stutterer thus diagnosed. He says that "in every case, the replies bore out the statements already made . . . concerning the various paradoxes of stammering." He does not submit the answers which he received from his subjects, nor does he offer any tabulations of them, which would give his readers an opportunity to weigh his conclusions. He gives instead his own answers to the questions and offers as his reason for doing this, that he finds it "necessary to give his own answers rather than

those of his correspondents because, unfortunately, none of these subjects were trained in introspection." He submits the questionnaire to himself and concludes (p. 248), strangely enough, as to his own answers, that he is not sure that they would be judged as characteristic of a stutterer, but rather thinks they would.

Bluemel says that there is "no necessary parity between the acoustic memory for ordinary sounds and the acoustic memory for words." In substantiation of this fact, which others besides him have noted, he refers to a case mentioned by Ballet of a distinguished musician who had a remarkable memory for sounds, but who had no auditory memory for words. He says further (p. 249) that "not every stammerer . . . is lacking in general auditory imagery." And yet in spite of these concessions he goes to the extreme of saying that among the 200 stutterers he has known, only two were "able to sing without disgracing themselves." This is scarcely consistent with his assertion that there is no "parity between the acoustic memory for ordinary sounds and the acoustic memory for words."

The author has dealt clinically with both amusia and stuttering. He has never found a stutterer who exhibited any signs of amusia, nor has he ever seen or heard of an amusic individual who stuttered. He does not mean to take the position

that a stutterer *may* not also be amusic, nor does he hold that an amusic individual *may* not also be a stutterer. Bluemel's generalization and the verdict of his clinical experience do not agree. In the case of the author, they agree.

Criticisms of Bluemel's Method of Investigation. Bluemel's book is the most pretentious one that has been written on the subject of defective speech in this country, and yet, wholly aside from the psychological principles, which, as we shall note later in connection with the theory of Swift, he has ignored, there stand out two things, which are calculated to vitiate his conclusions. In the first place, by his own confession, he does not know whether his personal answers to the questionnaire used by him would point to stuttering in his own case or not. If he is a stutterer his answers should surely show it; if he is not, his answers should show this with equal certainty. Otherwise of what value are his data? The lack of skill in introspection, of which he accuses his subjects, might be charged against him by others, but could scarcely be charged by himself. If he cannot interpret with any certainty his own answers to his own questions how can he be depended upon to interpret the answers of others, especially those who are, as he confessed, unskilled in introspection?

In the second place, although Bluemel classifies

the stutterer as being of a fixed imagery type, that is, an "audito-moteur," his main thesis, as we have pointed out, is that "stammerer's difficulty is transient auditory amnesia." He says that the stutterer, although of this fixed imaginal type, loses his auditory imagery in the act of attempting to speak, and relies wholly upon kinaesthetic images. Now, in setting down his answers to a questionnaire, one wonders whether a stutterer reported in the questionnaire his permanent or his transitory imagery habits.

Swift's Imagery Theory of Stuttering. The author cannot do better than to utilize here his own previous treatment of this same question in examining Swift's type of mental-imagery theory of stuttering.[4] Swift speaks of his theory as a "new finding."[5] "Psychological analysis," says he, "shows stuttering is (!) an absent or weak visualization at the time of speech. This new concept of stuttering as faulty visualization may be called *Visual Central Asthenia.* This lack or weakness in visualization accounts for all the numerous phenomena of stuttering in severe, medium, or mild cases."

Swift's Method of Investigation. The method by which Swift secured the data on which he bases his conclusions may be described as follows:

[4] "The Mental Imagery of Stutterers." *Jour. Abn. Psychol.,* April–May. 1917.

[5] *Jour. Abn. Psychol.* X. 1915, 225–235.

He began his preliminary tests by asking his subject to answer a question, and then to repeat a sentence after him. The question and sentence were (1) "Where do you live?" and (2) "The dog ran across the street." The subject was then requested to report "whether there was any picture in the content of consciousness and how long it lasted; and whether that was detailed, intense or weak." He summarized the results by saying that, of twenty stutterers, ten had no visual imagery; one imaged faintly; two visualized clearly but the "picture vanished on speaking"; seven, who had been under his treatment, visualized their homes clearly. In repeating the sentence, ten had no visualization at all; one visualized faintly; "four visualized well, but the picture vanished on speaking"; five others, of whom four had received treatment, "reported visualization."

After testing his stutterers by this method he examines normal persons in the same manner, and concludes that "almost without exception" they visualize clearly before speaking. These preliminary tests, he thinks, "warranted the tentative conclusion that stutterers have a loss or diminished power of visualization."

Thus encouraged, he undertook what he calls a "further and more exhaustive investigation," by which he desired to establish certain points regarding the extent of this weakness in stutterers

as compared with normal persons, and also the variations of it with the variations in the severity of stuttering. The language used in stating certain of the objectives of this final series of tests is in some cases out of the ordinary. He asks, for instance, "Is it (i.e., visualization) the same for past, present, and future memories?" Further, he desires to know whether visualization is "equally at fault in all sensory areas of the cortex." In order to answer these queries he employed eight sets of questions or sentences, each set containing three. "This long series of questions," says he, "with careful introspection tests upon the content of consciousness constituted my main research in the field of stuttering."

On nineteen subjects some four hundred of such tests were made, and from their fourteen hundred answers he drew in the main three conclusions, namely, (1) "When visualization is present stuttering is absent; when visualization is absent stuttering is present"; (2) that the severity of stuttering varies with clearness of visualization, as shown in the effects of treatment; and (3) that "visualization is slightly more frequent for past and future than for present memories." The last statement is by no means clear in meaning.

Criticisms of Swift's Method of Investigation. Before turning to Dr. Swift's conclusions it is necessary to call attention to what seem to be

serious flaws in his procedure. In his preliminary tests, for instance, after submitting a question or a sentence to a subject, he would ask him to state whether "there was any picture in the content of consciousness," etc. It is a matter of common experience to find difficulty in teaching experimental psychology when one comes to teach students to take due account of other images than visual ones. If, in questioning his admittedly untrained patients, he made use of the term "picture" to describe what he seems to have meant by "image," there is very good reason to be sure that his subjects understood him to mean visual image, and answered him accordingly. The truth of the matter is, Dr. Swift's directions are calculated to deceive the very elect, for the simple reason that he himself is apparently not clear as to what he means. Sometimes he uses the term "visualization" in the sense in which psychologists are accustomed to use the term "image," as, for instance, when he asks, "Is visualization equally at fault in all sensory areas of the cortex?" Again he talks about visualizing "an emotion of pleasure or pain." These words are unintelligible to one psychologist at least. And yet he says his data show that the "location of the trouble is visual; that is, it is situated about a center of sensory registration that deposits data from the eye; this must naturally then be located some-

where in or near the cuneus." There is no mistake about what he means here. But which of these two meanings did he have in mind when he questioned his subjects? Can we assume that he made them understand which of the several meanings he intended to attach to his words?

The Ideo-Motor Theory of Action in General. Aside from the sources of error in Swift's procedure there are involved in his conclusions certain assumptions that bear upon the general question, quite old in psychology, of the relation of imagery to motor control. He seems to have cut the knot of this problem with one blow, as did also Bluemel in his comparison of the relation between mental imagery and speech with the records of a gramophone. But Swift went even further than Bluemel in assuming an inherent nexus of relation between *visual* images and the motor processes of speech. The old ideo-motor theory of action held that the image in consciousness tended to inaugurate the movement that was "similar" to it, or that it represented. The well-known statement of James is this: "We may then lay it down for certain that every representation of a movement awakens in some degree the actual movement which is its object."[6] Now, the visual imaginal representation by a stutterer of a dog running across the street obviously neither "rep-

[6] "Psychology," Vol. 11, p. 526.

resents," nor is in any respect "similar" to the motor processes of speech utilized in describing this event. Kinaesthetic images have at various times been considered to be essential mental antecedents of voluntary action. Such phenomena as the loss of motor control through the destruction of the sensory tracts, as in cases of *tabes dorsalis*, as well as the experimental findings in the studies of the acquisition of habit and voluntary control,[7] also the phenomena of hypnotism and suggestion, have contributed to this conclusion.

It has been some time since Thorndike attacked the general theory of ideo-motor actionism and established, apparently, the conclusion that there is no original and necessary connection between ideas and motor tendencies which they represent; that if ideas are found to possess such tendencies these are due to associations that have been set up as the result of experience. The usually accepted point of view may be assumed to be stated by Pillsbury as follows:[8] "The more the antecedents of action are observed, . . . the more evident it becomes that the directing idea may be any sort of image whatever. In many cases, the imagery is very indefinite, seems to be very largely lacking."

[7] Bair, "The Practice Curve. A Study in the Formation of Habit," *Psychol. Rev. Mon. Sup.* No. 19, 1902.

[8] "Essentials of Psychology, pp. 298–299.

Ideo-Motor Actionism as Applied to Stuttering. Now, since it is true that psychology finds it necessary to call in question the existence of any fixed and necessary relation between kinaesthetic images and the movements that they represent, there must be grave objections to a theory that assumes such a relation to exist between *visual images of objects thought of* and the movements of speech organs carried out *in saying something about these objects.* Swift's theory must necessarily assume that there is one path by which the neural processes of speech travel, and that path is via the visual centers, so that when this becomes obstructed speech is blocked, and when it is open speech is unhampered.

Now, one may grant that there is at least a closer functional connection between auditory images and the production of vocal sounds than there is between visual images and vocal motor control. The congenitally deaf, for example, are likely also to be dumb; the congenitally blind are not. The congenitally deaf, moreover, are usually not able to talk in normal tones, since auditory images are an important factor in judging sounds. But Bluemel, strangely enough, does not employ this argument in support of his theory of stuttering. He seems to think that his theory is borne out by the fact that "stammering seems to be entirely absent among the congenitally deaf that

have been taught to speak." Now, if, as he claims, "the verbal image is absolute," if a person can, as he insists, no more utter a word that has not been previously recorded in his auditory memory centers than a gramophone can reproduce a sound that "is not present on the record," how can a congenitally deaf person talk at all? Furthermore, if he admits that such a person can, under such handicaps, shift to a different type of imagery and learn to speak by reliance upon kinaesthetic vocal-motor imagery, why do not stutterers do the same thing, if their difficulty is merely a matter of deficiency of mental imagery?

Granted that the permeability of the neural path involved in speech is the result of experience, if an individual has learned to rely upon a certain kind of imaginal cue for the inauguration and control of speech movements, one might *a priori* conclude that his speech processes would inevitably be affected if these cues should be disturbed in any way. There are cases, however, of both gradual and sudden changes in imagery processes without any corresponding disturbances of speech functions. Galton's report of a study of the imagery of certain English men of science says that "their faculty of seeing pictures . . . if ever possessed by men of highly generalized and abstract thought, is very apt to be lost."

"Speech movements," says Hoepfner,[9] "are the first to lose their concrete imaginal character and become abstract." The thought processes of children are, as is well known, highly concrete, and inevitably the expressions of their thoughts in speech would bear the same characteristics. As thought matures and comes to deal with wider and wider generalizations, the concrete, particular, pictorial content of consciousness must give way to more and more faded, washed-out symbols. The attention tends to shift from the original processes of speech, as the child is learning to use them, to the meaning of the thought to be expressed. And yet the tendency to stutter decreases with age and therefore with the progress of these changes.

Moreover, not even where transformations of imagery types have taken place suddenly is speech found to be necessarily disturbed. Charcot mentions a person who "possessed at one time a great faculty of picturing" to himself the persons and things about which he was thinking. "All of a sudden," says Charcot, "this internal vision absolutely disappeared," so that the person could not even image the faces of his wife and children. This same loss of imagery happened to a colleague of the author, though not with the same degree of suddenness. There is no record in either case

[9] *Loc. cit.*, p. 268.

of any disturbances of speech whatever, which surely should have been expected according to the mental-imagery theory of stuttering.

Why the Transitoriness of Imagery-Deficiency in Stutterers? Again, it must be noted that both Bluemel and Swift admit the transiency of the imagery deficiencies in stutterers. Now, if one grants the *capacity* for auditory and visual imagery, it becomes necessary to explain why it is that this capacity disappears at certain times. The explanation of this mystery, as the author sees it, is wrapped up in the secret of the cause of this transiency. There must be some variant factor that will make intelligible why it is that under certain circumstances a stutterer is capable of experiencing any kind of imagery whatsoever, whereas under other circumstances this same stutterer loses this capacity, and along with it the power of speech. The logic of the situation, no less than the psychology of it, would seem to demand that this prior factor, whatever it may be, shall be counted as the variant element that makes the difference between normal and abnormal speech. This variant element, this residue that has been so persistently overlooked, is, in short, the *fons et origo mali.* This book is the answer which the author submits to the question as to *what this variant factor is.*

Distraction of Attention Long Ago Found Effective in Stuttering. In another connection (p. 106) attention has been called to the fundamental difference between stuttering and the ordinary convulsive tic, the former being aggravated by centering attention upon the motor processes involved, whereas the latter tends to yield to attentive effort. The author has attempted to state the effects of distraction in the following way:[10] "Placing corks or wedges between the teeth, shrugging the shoulders, tapping with the feet, pinching with the fingers, whistling or counting before speaking, and numerous similar therapeutic expedients, all of which have been known to be effective in certain cases, seem to owe their efficacy to the fact that they distract the attention of the stutterer from his difficulty, and that, in consequence, they afford him a relief from the morbid inhibitions by which his speech is hindered. Stuttering has been frequently alleviated by the act of writing during speech. Many stutterers can speak perfectly while sewing, embroidering, or playing the piano. Others resort to blowing the nose, to scratching the head or to stroking the mustache before attempting to speak."

Now, for the stutterer to try to visualize the

[10] *Amer. Jour. Psychol.*, 239.

objects he is talking about will bring about distraction as effectively as any of the other expedients mentioned above, and may therefore be counted on to have the same effects upon his speech. When Swift's stutterers heard the sentences which they had been asked to repeat, the thing uppermost in their minds was not the meaning of those sentences, nor the visual qualities of the objects described in them, but the far more serious problem of getting them said without stuttering. Thus the stutterer in time accumulates an entanglement of morbid associations about the experience of speaking to other persons that obstructs his thoughts as well as his words. Naturally to draw his mind away from this entanglement will bring at least temporary relief. The objection to the continued practice of such expedients as a general measure of relief is that they soon lose their efficacy; the very devices themselves will in time acquire morbid associations. Something more fundamental and more sincere, something that deals with causes, must be provided. The use of empirical, claptrap methods of relief is characteristic of the secret methods employed in private schools for stutterers and should be superseded.

It is interesting to note that when medicine took hold of this problem of stuttering many centuries ago, its suspicions fell upon a single anatomical

structure as the seat of trouble. Later, when it began to be thought of as a physiological, rather than an organic or anatomical abnormality, various single bodily functions, such as breathing, vocalization, or articulation, each in turn, came in for a share of blame. So, when at length attention shifted to the mental realm as the source of trouble, a single item, the image, was seized upon which seemed to promise to serve well as a diagnostic scapegoat. The explanation of will in terms of the tendency of all ideas to fulfill themselves in action, and the denial of anything like a separate element of conation, gave the imagery theories of stuttering some substantial psychological support, at the time when they were formulated. This diagnostic quest, now centuries old, has proceeded from the physical, through the physiological, to the mental realms, and from the simple to the complex aspects of these several realms in turn. The imagery theory will doubtless take its place among the worthy guesses with which the pathway of development in this field is everywhere strewn.

The Psychoanalysis of Freud Applied to Stuttering. Almost simultaneously with the mental imagery theory of stuttering there came the second and most important psychological attempt at diagnosis and treatment in the way of application to it of the principles of Freudian psychology

and psychoanalysis. No sooner did psychoanalysis become known than it began to be realized by many that if it had anything to contribute to human ills at all it could surely be counted on to succeed in the case of stuttering, which, in the minds of everyone except the extreme organicists, or mechanists, was by this time conceded to be a functional disorder. No time was lost in putting the "new psychology" to work in this field. Stekel in 1908 wrote his "Nervoese Angszustaende und ihre Behandlung," in which he discussed stuttering as an anxiety neurosis. In 1909 Netskatchew wrote "Eine neue psychologische Behandlungsmethode des Stotterns." Appelt of England came out in 1911 with his "Stammering and Its Permanent Cure," which is a most ardent exposition of the psychoanalytic point of view. Appelt's book is characterized by optimism and zeal rather than by scientific method and accuracy, but in this respect his book is not unlike much of the Freudian literature of the time in which he wrote, (1911). Scripture in 1912[11] joins the psychoanalytic school of opinion though his book does not incorporate the psychoanalytic methods of procedure. He relies rather on phonetic drills, in which it happened that he had been interested for some time. Coriat and other writers, however,

[11] "Stuttering and Lisping."

began at once to put psychoanalysis to practice for the diagnosis if not for the relief of stuttering. Quite a number of Freudians have from time to time reported their findings and opinions in scientific journals. In the Freudian literature of a decade ago one gets a note of confidence, if not of certainty, that at last the right solution had been found for this ancient and baffling human problem. The author of this book confesses to have shared the hope that this might be true. He had spent several years in laboratory study of the problem from the descriptive and diagnostic end, and was quite ready to leave to others the therapeutic side of the work.

The writers on this subject who rely upon second-hand information still cling to a hope which the investigators themselves have in many instances abandoned. Bruce, for example, who writes well about many problems of child life, says,[12] "On the view that stammering is similarly a psychoneurotic symptom, and that, when it fails to yield to treatment by general suggestion, it is because the subconscious memories underlying it are too intense to be thus subdued, this group of investigators undertook to treat it as they would any stubborn psychoneurosis. The outcome of their experi-

[12] "Handicaps of Childhood," p. 225.

ments has been such that I feel justified in declaring that science has at last penetrated into the true inwardness of stammering."

The Promise of Psychoanalysis Has Not Been Fulfilled. Let us see in the first place as to whether there is any solid ground for our original expectations and then we will attempt to arrive at an explanation of the disappointing results of the application of Freudianism to the relief of stuttering.

As to the fact of its failure to yield expected results, we may offer the verdict of those who have the right to speak in the name of Freudian psychiatry. Brill, who, before the visit of Freud to America in 1909, which may be said to mark the inauguration of the movement in this country, had begun, together with Scripture, to apply psychoanalysis to stuttering, says in 1923,[13] "Like everyone else I was very enthusiastic in the beginning when I saw the remarkable improvement in some of the patients. My enthusiasm declined with the length of my experience and in the number of cases." After about eleven years, during which time he handled some 600 cases, and attempted psychoanalysis with 69, he found that he could claim to have cured only five, and one of these was reported to have suffered a relapse.

[13] *Jour. Speech Educ.*, IX, 1923, 129–135.

Reed, after making use of psychoanalysis in the treatment of stuttering, says [14] that the stutterer will eventually be found to contradict almost every theory that may be set forth regarding the nature of his trouble. Like Brill he started out with high hopes for success, but he also found that psychoanalysis would not succeed in "anything like the complete and clear-cut way in which it has succeeded in solving the problem of many of the other psychoneuroses." He was unable to trace any particular stutterer's difficulty to any definite traumatic experience. He found no inhibitions set up against the use of obscene words, and no individual associations in connection with letters caused by sex experience, such as were reported to have been found by the earlier investigators in this line (e.g. Appelt and Coriat.)

Other Methods of Treatment Have Succeeded Better than Psychoanalysis. Colombat, Blume, Coen, Berkhan, Gutzmann, and Oltuszewski, as reported by Conradi,[15] claim to have cured an average of about 73% of their cases. So that, judged by the results of its use as a method of treatment, which we grant is not necessarily a fair criterion of estimate in any kind of psychogenic disorder, psychoanalysis has made a poor showing. At certain ages spontaneous recovery may be expected

[14] *Jour. Abn. Psychol.*, XVI, 161–167.
[15] *Ped. Sem.*, XI, 1904, 327–380.

to reach a higher per cent than that reported by Brill. It may be said that in the case of functional or hysteriform disorders, absence of results is a better criterion of the fallacy of the theory of treatment than successful results are of the correctness of the theory of treatment. If you can only make a suggestible person *believe* you are going to cure him, the results are likely to be favorable regardless of the character of the treatment employed. The author has met one traveling "speech expert" who simply tries to bully his patients into the belief that they are not going to stutter any more, and he succeeds in a sufficiently large percentage of cases to keep him going professionally. He takes along with him the testimonies of his patients and also the recommendations of superintendents of schools in a number of large cities. Checking up after such work as this may be expected to yield a disappointing percentage of relapses; hence the wisdom of pursuing his profession peripatetically.

The Crude Association Diagnosis of Appelt. The crudities of the procedure employed by some who attempted the psychoanalysis of stutterers are not excelled even by those found in the procedure of Swift, to which attention has already been called. Appelt, for instance,[16] describes his method as follows: "Following Dr. Jung's exam-

[16] "Stammering and its Permanent Cure," p. 143.

ple, we simply induce the patient to tell us the first association which occurs to him on being given a 'stimulus word.' We write that association down and also note the time it takes the patient to reproduce the 'reaction,' making the necessary allowance for stammering.'' The reaction time, presumably, was taken by a stop-watch. He found that the reaction time of the stutterer was very much delayed by the inhibiting influences of submerged complexes. When a subject failed to react at the end of 25 seconds he counted that reaction out. He gives a table of the reaction times of one subject to the Jung list of 100 stimulus words. Out of the total list this subject went over the 25-second limit with 19 words. It would seem that such results should have excited suspicion at once, but they are accepted by Coriat, and also by Watson [17] and passed on as established facts. The logic of such a method applied to stutterers should have condemned it at the outset, for, when the stutterer is under the necessity to speak, it is a matter of actual observation that his associations become disturbed, and in certain instances wholly inhibited; it is not that they are thus disturbed ordinarily, but that *this particular experience* of the necessity to speak with the consequent fear of failure has disturbed them. If, for example, in these experiments, there comes to

[17] *Jour. Phil., Psychol., and Sci. Meth.*, 1916, p. 592.

the mind of the stutterer a response in the way of an association word which he knows to be a difficult one for him to utter—and it is well known how quickly their minds run forward to bugbear words even in reading—he will not react at once, but will endeavor to think up a word less difficult for him to pronounce. One of the author's clinic cases to whom he gave the association tests, a very intelligent young business man, reported that he would often have to think up as many as four synonymous words before he could speak. He suggested, by the way, that stutterers ought to be experts on free associations, if they could only talk, since they had to practice substitutions of words constantly.

Difficulties in Using Ordinary Association Tests with Stutterers. There can evidently be no free, passive, fluid associations, such as are secured from normal persons, when the stutterer is facing what is to him a difficult situation, out of which he has to think his way. The very conditions of his case are such as to preclude success in the use of such a diagnostic procedure. Unfortunately, this is not the only instance in which we have gone blithely on judging the stutterer by the same standards as those by which we deal with normal speakers. On being called upon to speak there is, in the case of the stutterer, not only an interference with the flow of ideas, but there is in se-

vere cases a considerable blurring of consciousness. This fact, which is borne out by introspective reports of many subjects dealt with by the author, is perhaps the most tragic aspect of the stuttering child's experience in school. It seems unforgivably dense not to realize that when you ask a stuttering child to speak before a class, you have subjected him to conditions that will block not only his speech processes, but his thought processes as well. To estimate the success of his school work by what, under these circumstances, he has been able to express, is obviously a grave injustice.

Written Responses Obviate the Difficulties of the Jung Method. The writer does not believe that Appelt has been able to "make the necessary allowance for stammering," and even if such a thing were possible it would not remedy the disturbances to the processes of thought which his very procedure could not but set up. If the time factor could be wholly compensated for, the quality of the stutterer's associations would still be so altered that, instead of being diagnostic of buried complexes, they would be without value. The author attempted to devise a procedure for testing the association processes of stutterers in which the stutterers and normal speakers would be put on the same footing. He used the same reaction words as those employed by Appelt, but

instead of requiring the subjects to react by speaking, he had them react by lifting their hand from a telegraph key in the act of writing their reaction words. The lifting of the hand broke an electric circuit, which stopped a Hipp chronoscope, which had been set going by the act of exposing the stimulus word through a shutter. This experiment was carried through only the preliminary stage. It was found that the subjects developed the habit of lifting their hands to write before thinking of the reaction word, and thus the reaction times were somewhat doubtful in value, but so far as the experiments were carried, there was found to be no difference between stutterers and normal speakers. This preliminary study was carried to a further point, and worked out with more care by Miss Marion Font, a graduate student working under the writer at the University of Iowa during his sabbatical leave in 1923–1924. The procedure used by Miss Font was the same as that above, with the exception that for timing, she used a stop watch and measured the interval from the giving of the stimulus word to the point at which she saw the subject make a move to write. Her results are as yet unpublished, but it is legitimate to say that they pointed to no essential, inherent difference between stutterers and normal speakers, so far as reactions of this kind are concerned.

Single-Track Diagnoses. The tendency to center attention on a single aspect of stuttering, which we have noticed to be characteristic of all stages of the investigation of the subject, has persisted even up to the present time, when diagnosis is almost wholly concerned with mental factors. These single-track diagnoses are well illustrated in the Freudian procedure. Such diagnoses achieve simplicity and clearness at the expense of many vitally important facts. Aikins, writing [18] under the striking caption, "Casting out the Stuttering Devil," illustrates this tendency so well, and at the same time so admirably betrays essential fallacies of the Freudian procedure, so far as its use in the case of stuttering is concerned, that it seems worth while to give a brief account of his case and the treatment employed.

Aikins' Case of the Stuttering Devil. Aikins' case was Jake, a fourteen-year-old Jewish boy, who after having stood first in his classes in the grades went to high school, and there became ambitious to be the valedictorian of his class. He was compelled while in school to work very hard at selling papers, under very taxing circumstances, in order to maintain himself. He soon began to stutter very badly, so that the teacher finally called in the psychoanalyst to see what

[18] *Journ. Abn. Psychol, and Soc. Psychol.*, XVIII, 1923, 137–152.

could be done. Jake was summoned for the interview. He was seated with a view to relaxation, with his head lying comfortably back in an easy chair, and was called upon to tell whatever came into his mind. By considerable prodding Jake was induced to reminisce about his stuttering, and to relate other disagreeable experiences of his life. He recalled the first day he ever stuttered, mentioning in this connection that his mother upbraided him for it, and that he became excited and nervous. Everything in his childhood seemed to make Jake "kind of excited," and many things seemed to have kept his family excited also. "There were lots of troubles in our family when I was young," says he. Jake's imagination was quite active during his interviews. In one instance he reported that when a child he was chased about a half mile by a snake. He reported getting into many fights with other boys when young. When five years of age he was chased around a house by a mad dog. His father came to his rescue and killed the dog with a club. He dreamed about this episode for one or two nights and then forgot about it. In answer to the psychoanalyst's question as to whether he was yelling while the dog chased him, he said that he was. At this point in the diagnosis Jake reported "a kind of agitated, blank" feeling. After the questioner had asked him if he felt alone in these states of mind or if

"someone were with him," and after having the examiner's watch held to his ear "to help overcome the influence of ordinary present-day interests and make it easier for old, dissociated thoughts and feelings to return," the villain in the case makes his appearance, namely the "Stuttering Devil." Jake's mother, it seems, used to tell him stories about things she had been told about in Russia. Among these were stories about the devil. "I heard these stories," says Jake, "about the devil in the same place where I was chased by the dog." (Hence probably, the association.)

Jake soon became able to shut his eyes and envisage the picture of the devil, and himself engaged in a bout with him. The examiner's report of Jake's account of one of these bouts is as follows: "I have him down, and I had my revolver with me, and I have two of his hands with my one hand, while with my right hand I take out my revolver and shot him right through the heart; and I hope I'll conquer him yet. I am thinking, it seems to me that this person is this stammering; that it is personified by this person. Yes, I've got him killed." Aikins agrees with the boy's conclusion. He says, "That guess of Jake's about the stammering comes near the truth." He thinks that the devil symbolized in Jake's mind, carried the essence of all the emotional shocks from which

he had suffered, so that for him to conquer this devil in an imaginary bout was the way to secure relief from the accumulated effects of the various nerve shocks from which he had suffered since childhood. One is reminded, it may be said in passing, of Babinski's attempt to account for all the symptoms of hysteria as being the effects of suggestion, direct or indirect, from the diagnostician, by this significant remark of Jake at this juncture, namely, "I never thought of these things much until you just reminded me of them."

At the second interview Jake reported that "on the whole the stuttering is better." Again he staged a bout with the devil. After a while he was told by the examiner to "close his eyes once more and see the devil and ask him if he is real." The devil reported to Jake that he was not real, but that he just wanted to make him stutter. This seems to have angered Jake, so that he told him what he thought of him, "that he was a doggone coward." This strong language seems to have caused the devil to shrink up, and in turn "Jake gives a low, happy whistle and reports that he feels better." But the devil is not vanquished. He keeps coming back à la Freudian "secondary elaboration," but it is clear to the examiner that Jake is winning his fight. The dramatis personae of his imagination "are by no means as real as they were at first." This wrestling with the devil

went on for some time. After two years he reported to the examiner that he had "no more dreams of dogs or demons," and as to his stuttering he says: "After our last talk I thought with myself: That thing is there, and it is up to me to get rid of it. So I just literally threw it away. Sometimes when I get excited or nervous I get blocked; but when I am calm I can actually rattle off words like a steam engine."

Aikins' Theory of Stuttering Accords with Freudian Doctrines. Now to set forth Aikins' theory of stuttering we quote:

> Stutterers are the victims of emotional habits, which can be corrected like any other habits if one can only trace them to their source and break them up from within. If a child has rushed through a dark lane, scared out of its wits, two things will happen in the future; he will shy away from the lane, especially in the dark; and if something starts him into it he will rush through it in the same headlong way as he did before. A horse would do the same. It is a simple matter of emotional habit which is at the root of all the phenomena that Freudians describe in terms of "unconscious ideas," "buried emotions," and "complexes." And the way to break up the habit is to gain the child's confidence and go through the lane a few times with him, encouraging him to stop and examine each spooky object, until nameless fear gives way to confident knowledge and "the place of dragons, where each lay" has become such a familiar and commonplace lane that it is quite impossible to rush blindly through it again. This is breaking up the habit from within,—a very different matter from

sitting somewhere in the light and telling the child that it is absurd to be afraid. He knows that already.

Criticisms of Aikins' Assumptions. Now, Aikins, we may reasonably assume, wishes to convey three impressions: (1) In the first place that he was successful in treating Jake's stuttering, (2) that it was by psychoanalysis and drainage "from within" that his success was achieved, and finally (3) that this method of treating stutterers is the correct one to pursue in all cases.

As to whether he has any right to claim a cure or merely an alleviation, with doubtful prognosis, in Jake's case, the boy's own report that he still "got blocked" when excited or nervous, affords pertinent evidence. Hopefulness upon the part of those who attempt to treat stuttering is but human, and it is at the same time a very essential element in successful treatment. The hopefulness and optimism of the stutterers themselves are proverbial, as may be inferred from the well-known story of the stutterer who had been to one of the stutter cure institutions, and had returned home. One of his friends asked him what he thought of the treatment he had received. The stutterer replied: "It c-c-c-c-cured me." Stutterers may be called *hyper*chondriacs, in contrast with *hypo*chondriacs, without the usual implications of the organic differentiations.

Assuming that Aikins' treatment was success-

ful, there is room for question as to what brought this cure about. As one reads the account of Aikins' handling of the case, it seems certain that he has ignored a number of important causal as well as remedial factors in the situation, in his zeal for the Freudian technique. Seeing these serious omissions one wonders if the devil is not here for the *n*th time in human history being made to play the rôle of scapegoat. As we have seen in previous chapters the stutterer has been the *corpus vile* for experimentation and wild guesses for centuries. When it comes to the employment of sorcery, however modern its form, science must offer the plea that the poor wretch be spared. Aikins is to be thanked for one thing: it was fortunate for Jake that he did not fall into the hands of *some* Freudians, or else he would have had to stage a bout with Venus instead of Satan, and this might not have been wholesome for a boy of Jake's age.

Aikins says that if a child becomes frightened in going through a lane and thus acquires an emotional habit the only way to cure him of this is to go through the lane with him. He decries the method of "sitting somewhere in the light and telling the child that it is absurd to be afraid." And yet to Jake the school room is the spooky lane which sets off his fears, whereas Aikins would prefer to say the snake experience, the

mad dog fright, etc., were the spooky lane. But instead of taking Jake to the *actual* situation to which he finds it difficult to make an emotional adjustment, which would of course have been impossible, he has him "seated in an easy chair," and, so far as we are told, "in the light," where he conjures up the vision of the devil who, presumably, serves as a symbol, or mental surrogate of all the spooky lanes through which Jake may have gone while laying the foundations of his stuttering.[19]

Heredity Seemingly Not Given Due Attention in Aikins' Case. Forgetting for a moment the devil in the case, one sees very clearly from the record that Jake's family was of a highstrung type. They had come, apparently, from Russia and were under the strain of making social and economic adjustments to the new situation. We are told of things that "excited the family," and the lots of trouble that they had to undergo. The fact that they were Jews introduces an important factor into the situation, the significance of which is stressed elsewhere in this book. Jake himself was under the strain of a keen desire to excel in school, and at the same time he was compelled to earn money by selling papers under very taxing circumstances. The news agent, under whom he

[19] The author's records taken while subjects imagined embarrassing situations gave negative results. Cf. *Loc. cit.* p. 241.

sold papers wanted him to sell more papers than he could, and would threaten him with discharge. "When he gets crazy," said Jake, "he always punches me, and I'd like to hit him, but need the money, so I can't." Aikins records, but seems to pay very little attention to, the fact that the boy is "startled into stuttering speechlessness," by one of his teachers. Jake says he does not know why teachers should affect him so, "only," says he, "you feel kind of—I can't explain—in awe of them." Aikins assumes that the removal of the fear of snakes, mad dogs, devils, etc., the tap-roots of which are somehow tied to the image of the devil, with which Jake fought, would reach and remove this specific fear of speaking to certain people, this morbidity of social attitude, which without doubt is always found as the *immediate* provocative of stuttering whatever may be its genesis.

Validity of Aikins' Assumption Doubtful. The validity of Aikins' assumption is certainly open to question, for, if all fears could be traced to a single tap-root, if phobias were thus generalizable why do not all children who show fear obsessions also stutter, and on the other hand, why do not all children who stutter prove to be originally nervously unstable children? There is, to be sure, what is called "free-floating fear," which is characteristic of typical anxiety neurosis, but the fear

from which the stutterer suffers is not of this kind. On the contrary, it is one that can be engrafted onto the most normal make-up, as we have attempted to show by data offered throughout this book, especially in Chapter II. It is recognized of course that such fears are more easily engrafted onto personalities that show neuropathic diathesis. But we cannot escape the indisputable fact that not every person of neuropathic diathesis stutters. Hence the fallacy of any method of treating stuttering that assumes this to be the case, either implicitly or explicitly.

The Alleviation in Aikins' Case Is Probably Due to Influences Not Included in the Psychoanalysis. As to the many therapeutic factors which Aikins seems to have left completely out of consideration in giving his account of how he vanquished the "stuttering devil," only a few need be mentioned. In the first place there is the general situation of having someone who is looked upon by the patient as an expert to take hold of his case and to help him to rationalize it and plan a campaign against it, to encourage him and offer him sympathetic support. This of itself is a therapeutic factor which can by no means be ignored. But Aikins goes much further than this by way of suggestion, as we see from the following statement in his report: "Before Jake goes away he is told to keep repeating 'There is no

devil; I just dreamed it. And I do not have to stutter.' " Here Aikins goes beyond mere indirect suggestion, which, according to Babinski, is itself sufficient to produce the symptoms of pithiatism ("persuasionism") or hysteria, and employs the auto-suggestion technique of Coué.

Furthermore, assistance was given to Jake in the solution of many problems that had been a source of worry to him. He was given advice by which the bullying at the hands of his employer ceased. He was given help in adjusting his relations to his teachers, two of whom especially were a source of distress, so that a wholly new attitude was engendered toward them. He was given sympathetic hearing about his future plans, etc.

Two years afterward, when Jake was giving his final report, although he said that he still stuttered at times, he made this remark to the psychoanalyst: "After our last talk I thought with myself: That thing is there, and it is up to me to get rid of it. So I just literally threw it away." This courageous and significant remark leads one to say that perhaps not altogether to Freud, or Coué, or even to Aikins should the entire credit be given for the improvement noted in his case. At least a modicum of it should go to Jake. It is a well-known fact that many stutterers succeed without any help in rationalizing and mastering their difficulty. This is what in actuality has

always occurred in those cases that have given rise to the tradition that some children "grow out of stuttering," a favorite piece of consolation offered by family physicians when consulted by a family in distress over a stuttering child. There is in reality no such thing as "growing out of stuttering," that is to say, recovery from stuttering though it may be spontaneous in that it comes to pass without help from others, is not a mere incident of growth. If children recover at all, and some do, it is by mortal combat, with odds against the victims, and at the cost of poignant mental suffering, even where they come out victors. One can no more grow out of abnormal speech than one can grow into normal speech. In neither case is it a mere matter of becoming older; rather is it a matter of toilsome and painful self-mastery.

Now with all of the above-mentioned factors of acknowledged therapeutic value that have been gleaned from Aikins' own report, one cannot see what warrant he has for attempting to leave the impression that his feat of curing Jake was accomplished solely by a procedure which he calls "casting out the stuttering devil." If Aikins had not been so interested in the devil and had been more interested in the residual factors of the sort enumerated above, perhaps he might have discovered more of them. Even the ones he has men-

tioned, but which for some reason he seems to throw away in his reasoning, are to the author quite sufficient to account for whatever amelioration we are justified in accepting as being brought about in Jake's case. Far better, at least, could we do without the devil than without these influences in trying to account for Jake's improvement. It was a French savant, was it not?, who, when asked if one could kill a cow by incantations, replied, "Yes, if you mix a little strychnine with them." The Freudians will have no trouble casting out stuttering devils if you allow them to mix a number of other potent remedies along with theirs.

Coriat Makes Use of Psychoanalysis. It was in the main this general conception of stuttering that Coriat attempted to work out in the earlier days of the Freudian movement in America. Stuttering to him was a complex indicator,[20] similar in character to the complex indicators dealt with in the diagnostic association methods of Jung. When, for example, a stuttering boy was being diagnosed by him he sought to find out what particular letters or sounds gave the patient most difficulty. If he found the boy to have trouble in pronouncing *k* sounds, he assumed that this boy had previously had some kind of emotionally toned sex experience with a girl whose name was,

[20] *Jour. Abn. Psychol.*, vol. IX.

say, Kate, or else a similar experience with a girl of another name in a *kitchen*, or a *camp*. At any rate, the assumption is that the patient has received a *k* trauma of some sort, and it is up to the diagnostician to ferret out the mystery of the precise nature of the episode that produced it. With the latitude of interpretation that is admissible in Freudian usages, it is not impossible to find something of this general sort in the past history of most human beings. At least one may reasonably expect to succeed with this sort of explanation to the extent of satisfying a theory in one or two instances in any single case. But how one could in this way complete the life story of a boy who stutters on practically every letter it seems difficult to imagine.

Stuttering to Coriat is always rooted in sex. Sometimes he pictures it as a device of the unconscious mind to conceal the stutterer's sexual thoughts from his auditors.[21] This theory explains to him why it is that stutterers stutter worse when speaking to their relatives. Regarding this latter point the author is disposed to raise an issue of fact. His clinical observations have not led him to conclude that stutterers always have more difficulty in speaking to relatives than to strangers. He has found the contrary to be the case in many instances. Abnormal associa-

[21] *Jour. Abn. Psychol.*, 1909, p. 421.

tions may, to be sure, be set up in a child's mind by parents, relatives, teachers, and all others of superior social rank or authority. But to the author it seems to be the experientially engendered morbidities of attitude connected with these social relationships, rather than the subtle attempts at protective concealment worked out by the unconscious mind, that can best account for the reactions observed.

Again, and more recently,[22] Coriat describes stuttering as having its rise in oral eroticism of infancy, and as being manifested as the recurrence of sucking movements, with narcissistic over-valuation of speech, and emotional accentuation through conflicts concerning the use of obscene words.

Scripture's Application of Psychoanalysis to Stuttering. Scripture's book, "Stuttering and Lisping," is, as has been previously pointed out, essentially a manual of phonetics to be used in the treatment of stuttering and in the correction of defective speech (i.e., lisping). He follows the principles of Freudianism in his diagnostic theories and to some extent in his therapeutic practices. He says,[23] for example, that stuttering is an emotional trouble, that it is a psychoneurosis whose essential characteristic is "the uncon-

[22] *Int. Jour. Psychoanal.*, 1927, VIII, 56–62.
[23] Preface to 2d. ed., p. 41.

scious desire to avoid human society and whose mechanism consists in using ridiculous speech as a means of attaining the desired isolation." "Stuttering," he says, "is therefore a diseased state of mind which arises from excessive timidity and shows itself in speech peculiarities that tend toward a condition of segregation which will enable the person to avoid occasions where he will suffer on account of timidity."

Scripture thinks [24] that one may "get at the root of the fear by psychoanalysis." But he holds that "this alone is not adequate, and no stutterer has ever been cured by it. The patient has a whole series of bad habits engrafted upon his fear, and he will not drop them unless he is shown how to do so."

Although he holds that "the influences in the child's life can be fully understood only by persons familiar with the psychology of the unconscious," he does not, like Coriat, charge the libido with chief responsibility for the causation of stuttering. He says, touching this point, that "the vital point is next to determine the nature of the objectionable elements that affect the speech. In normal life it is anything that arouses a feeling of opposition. With the epileptic it may be the entire content of life." The stutterer does not, to his mind, exhibit any such morbid objection to

[24] Lancet, 1923, Vol. 1, p. 750.

life as a whole as this, but something of the same reaction is indicated by the fact that when the stutterer finds himself alone, "his stuttering disappears." "It is to be understood, of course," says he, "that the objection in all these cases is unconscious; the epileptic or the stutterer himself knows nothing about them and would deny the fact if it were told him. There may be the usual conscious over-compensation for the unconscious defect; the epileptic or the stutterer may attempt to be even more sociable than normal."

Why Psychoanalysis Does Not Work with Stuttering. This book is not intended to serve as an indictment of Freudianism or psychoanalysis *per se*. The author of it is disposed to accord to Freudianism, both as a general psychological theory, and as applied to the solution of the problem of stuttering, full credit as a heuristic principle. However, in spite of the adherence of the foregoing experienced authorities to the doctrine, there seem to be no valid pragmatic considerations for reconsidering the verdict, already mentioned, of Brill and Reed, that psychoanalysis applied to stuttering has failed.

There must surely be psychological considerations that may serve to explain the significant fact that psychiatrists are not found to be generally announcing themselves as being prepared to cure stuttering by this or any other method. The fol-

lowing explanatory considerations are suggested at least in partial explanation: (1) The mental mechanisms underlying stuttering seem in certain important respects to be different from those of the psychoneuroses in general, with which psychiatry is accustomed to deal *in a clinical way.* For, granted that the trouble may *begin* in Freudian form, with a traumatic episode, repression, complexes, inhibitions, pathogenic memories, etc., the evil consequences of such experiences will be but to provide a neuropathic background, out of which stuttering *may or may not arise.* Stuttering is a specifically conditioned form of reaction tendency. If it, when thus favored, chances to arise, its clinical characteristics will be determined more by the immediately conditioning experiences than by any remote and forgotten predisposing factors of causation. The ordinary psychoneurotic, with whom the psychiatrist is accustomed to deal clinically, we are told, is likely to be living mentally apart from the real source of his distress, by reason of his repression of the memory of the traumatic episode and the consequent amnesia. Hence the justification for the use of the concept of the unconscious mind. The stutterer, on the contrary, carries along with him a constantly accumulating mass of associations, which are of the very sort that, in connection with a favorable diathesis (inherited or acquired), are

the conditions *sine qua non* of his disorder. Herein constitutes the difference between stuttering and the simpler phobias, such as the case of claustrophobia described by Rivers.[25]

(2) In the second place it seems to be clear from the history of the study of stuttering that progress in the understanding of it has been achieved in the exact measure as we have got away from the organic and physiological conception of it, and have approached the psychological and educational interpretation. This fact comes out not only in the abandonment of the crude surgical operations on peripheral organs, formerly resorted to, but may even be shown in the types of mental measures of relief above described. The imagery theories, as already pointed out, grew out of the structural psychology current at the time they were formulated. This structural psychology in turn dates back to the physiological laboratory, in which experimental psychology had its inception. Hence, in so far as it retained its physiological and structural point of view, it could not be expected to lead to the explanation of a phenomenon lying outside the range of its data. On the other hand, while Freudian psychology came forward with a more dynamic and functional conception of mental life, a conception which has without doubt been helpful in leading

25 "Instinct and the Unconscious."

toward a clearer understanding of many forms of mental pathology, it has seemingly failed completely to bring the results expected of it in the field of functional disorders of speech. Investigators of this subject, in formulating their theories concerning its nature and cause, have, it appears, been misled into carrying over concepts derived from various stages of the development of several sciences. But more especially do they appear to have been misled by the analyticism and the structuralism of earlier experimental psychology.

(3) Besides the errors incidental to the illegitimate use of older psychological concepts, investigators of this problem have possibly been even more misled by the use, in their thinking, of medical analogies. Freudian psychology especially has been characterized by methodological errors of this sort. As a psychological system of therapy it bears the birthmarks of the hospital; its technique is copied after that of the operating room. We are led in reading it, for instance, to think of buried pathogenic memories as the surgeon thinks of encysted foreign bodies or pockets of pus. And, as the surgeon probes after the foreign bodies, or seeks to drain the pockets of pus, so the analysts seek to probe after repressed emotional complexes, as if they too were somehow localized in a definite memory zone, and to drain

them by mental catharsis of some sort. Now, there are well-accepted principles of psychology, as well as many facts of experience, indicating that in stuttering we have to do with a mental phenomenon which cannot be localized physiologically in a punctiform area, neither can it be conceived after the fashion of a focus of infection that is subject to removal by short-cut processes of mental surgery. Stuttering involves the whole personality, emotional, intellectual, and volitional. The stutterer has acquired his difficulty as he has come to possess any of his other mental acquisitions and emotional reaction tendencies. One can no more localize it than he can localize these. Hence the error and the false hope involved in thinking that we can "uproot," "break up from within," "cast out," this disorder of speech with the same sort of dispatch with which a surgeon can remedy a distorted limb or remove a diseased tonsil. He who encourages the spread of this conception of stuttering is, therefore, not only incorrectly oriented in respect to it scientifically, but is likely to be of social disservice by bolstering popular faith in short-cut "cures."

(4) In order to make the unconscious mind do service in the explanation of stuttering after the Freudian fashion it becomes necessary to evolve a somewhat intricate system of explanatory mechanisms, such as transfers, symbolism, etc.,

many of which are capable of about as great a variety of interpretation as were the oracles of the Greeks and Romans. To many persons the application of the psychoanalytic procedure, as exemplified by Aikins, Coriat, and Scripture, above cited, sounds like juggling with cryptic and equivocal nomenclature. But, waiving such estimates aside as being the prejudices of the uninformed, there remains a criticism which cannot so easily be brushed aside, namely, that such elaborate systems of explanation are gratuitous; the clinical facts in the case are intelligible without them. One is sometimes tempted to recommend to Freudians that to their elaborate tool-chest of "mechanisms" they add at least one other. It is an old-fashioned tool, to be sure, but in spite of its antiquity it is still useful to science. This tool is Occam's razor of parsimony, which—lest we may have forgotten about it—recommends that hypotheses be limited to the legitimate requirements of explanation.

(5) Further, in reference to the explanation of stuttering as a method of concealment or escape from social contact, one can only think of this in the light of some sort of basic instinct of self-preservation, similar, for instance, to the crouching and hiding instincts manifested by lower animals. But in all such instances in the lower orders of life the reaction tendencies are reasonably

adapted to the achievement of their biological ends. Stuttering could scarcely have enhanced the chances of a man's survival; and if not it could have had in the past no selective advantage. And instead of effecting social concealment, it makes its victim, as a rule, the most conspicuous member of his group, and thus causes him to suffer continuously from the very thing against which, forsooth, it is intended to protect him.

(6) Finally, there seems to be an even more important psychological consideration to be suggested in explanation of the fact that the usual clinical methods of psychiatry, and those of psychoanalysis in particular, are, by those who have employed these methods for years, considered to have failed in the treatment of stuttering. This consideration will be dealt with more in detail in another connection, and hence needs but to be mentioned here. It is, that for the most part the objective held in mind in the use of these methods has been the adjustment of the *patient to his environment,* rather than the restoration of the individual's ability to talk by providing an educational environment that is adapted to his handicap. The strain of the stutterer's daily experiences is more than sufficient to overcome the good effected in an hour's interview once or twice a week, however well conducted these consultations may be.

Tompkins' Voluntaristic Theory of Stuttering. There is still another psychological theory of stuttering that deserves to be added to the foregoing. Mr. E. Tompkins of Los Angeles has taken interest in the treatment of stuttering, and has written sympathetically and well in many medical and educational journals on the subject. He has been refreshingly free from the errors, especially that of formulating gratuitous hypotheses, such as we have tried to point out in the writings of other investigators who have interested themselves in this problem. Although, instead of building up a new system of psychology to meet a specific need he attempts to make use of familiar psychological principles, he nevertheless appears, in the opinion of the author, to fall short of adequate explanation, as we shall see after his theory has been stated in his own terms. He conceives stuttering to be due to the interference of the will in the normally automatic processes of speech. This voluntaristic theory of stuttering he has set forth in the following way:[26] "Normal speech is automatic. No one knows how he speaks. Let any one who questions that sit down and write out just what muscles are used and the exact sequence of their use in saying the word California. He will soon convince himself that he does not know how he talks. But since he does talk, and since

[26] *Pedagogical Seminary,* XXIII, p. 155.

he does not know how he talks, then he does not talk consciously but must talk automatically.

"Now it has been shown that the stammerer can say what he fears he cannot say. Also it is recognized that he makes an effort to talk. But since he does not know how he talks the effort conflicts with his normal automatic speech, and he stammers. In other words, stammering is a conflict between normal speech and a conscious effort misdirected through ignorance of its proper direction."

In support of this theory Tompkins offers the following somewhat interesting bit of logic: "Although this proof shows that stammering results from a conscious effort at speech, there may be some who will say that another cause is possible. Let us assume some other cause and see what the assumption leads us to. This cause must appear and disappear synchronously with stammering. But the changes from normal to abnormal speech are so rapid and hitherto unexplainable that not even one cause could be found that met the conditions, whereas we are now in the position of supplying two. Moreover, even the assumption of any particular cause was the result of a need of an explanation, whereas we now have a perfectly valid explanation. Therefore the assumed cause is an absurdity. Consequently there can be no other explanation of stammering

than collision between normal and conscious speech."

The Inadequacy of Tompkins' Theory as a Whole. This rather awkwardly stated *reductio ad absurdum,* wrought out somewhat *vi et armis,* seems to say, if we get its meaning clearly, that there is not sufficient time between the shift from normal to abnormal speech for more than one psychic cause to intervene, and that since the cause which he suggests is "a perfectly valid one," there can be no other. Now disregarding the begging of the question in this argument, one may say as to the theory in general that there is truth in the claim that volitional interference in the normally automatic processes of speech is causally related to stuttering, as we have repeatedly recognized in calling attention to the influence of distraction on stuttering. But we differ somewhat radically with Tompkins in the claim that there is a very important factor seemingly overlooked by him that is antecedent and causally related to the volitional interference itself. We therefore are compelled to number ourselves among those who say that "another cause is possible," and thereby are forced to plead guilty to advocating what he calls "an absurdity." But if the author has not misread his words Tompkins has placed himself in the same category with the hypothetical opponents of his single-cause

idea. He says, for instance,[27] "Stammering is induced by fear of inability to talk. This fear prompts the conscious effort which blocks normal speech. Therefore if the stammerer does not fear that he cannot talk he will not make the conscious effort at speech, his normal speech will reassert itself, and he will talk. No fear assails him where he talks in concert, because he knows that his voice will not be missed even if he does stammer."

Tompkins Presents Incompatible Viewpoints. Now these two theories concerning the antecedent causes of stuttering are on their faces incompatible with each other. No one can accept them both. The author can accept the latter but not the former. What Tompkins describes as the volitional interference with the normally automatic functions of speech is due to the familiar phenomenon ordinarily described as self-consciousness. What we call self-consciousness, by the way, is in reality an exaggerated and emotionally colored consciousness of others. Removal from the company of others removes the so-called self-consciousness. Stage-fright is but another form of the same thing. How effectively this interferes with piano playing and even thinking is well known. Ask any person to walk across the floor under the critical scrutiny of many eyes, and mark the increased awkwardness of his movements.

[27] *Loc. cit.*, p. 152.

Clearly all these cases are intelligible when interpreted only as the inhibiting effects of social attitudes.

The Cause of Volitional Interference Overlooked by Tompkins. Everyone knows that with certain normal children this volitional interference takes place, whereas with others it does not take place, on attempting to speak. And with the stuttering child it sometimes does and sometimes does not take place. The crucial question is, *why the difference* in the two types of responses, and why the difference in the two mental states of the same child? To say that a child stutters when volitional effort interferes with the normally automatic processes of speech is scarcely more than to say that he stutters when he stutters. In spite of the fact, therefore, that Tompkins is offering a psychological explanation of stuttering, he too, like Swift and Bluemel, is looking at symptoms instead of their antecedent causes, though the symptoms on which Tompkins centers his attention are much nearer the heart of the matter than those that interested the advocates of the imagery theories.

The average person would become terrified if made to walk along a plank six inches wide placed on the edge of a tall building. His walking would be so seriously interfered with that he would be in danger of falling over the side of the building.

If the same plank should be placed on the ground, he would experience no difficulty whatever in walking from one end of it to the other. The fear of falling in this case would render difficult what would otherwise be a very simple and easy thing.

The stutterer's fear is none the less real because his life is not at stake. He fears the scrutiny, the astonishment, the laughter, and even the pity of his auditors. And this fear, as in the case of the man walking on the elevated plank, is what renders him incapable of carrying out what, in the absence of the fear, is the easy function of speech. Tompkins must be given credit for recognizing this fact when he says that "stammering is induced by fear of inability to talk." But, since he has argued that "there can be no other explanation of stammering than collision between normal and conscious speech," he appears to be holding to two conflicting theories.

One of the three criteria of stuttering pointed out by Chervin [28] is that it is absent in singing and in solitude. Tompkins seems to have abandoned his voluntaristic theory in his attempt to explain why stuttering is absent in singing. Stuttering is absent in solitude, he says, because thus situated the stutterer makes no effort to speak.

[28] The other two are (1) that it begins in childhood, and (2) is intermittent.

To be sure, there is no interference, no blocking, that requires to be overcome by the exertion of effort. But that effort may be called for in speaking in solitude under circumstance, say, of fatigue, ennui, etc., is beyond question. If stuttering were entirely the result of efforts at volitional control over the processes of speech, both oratory and singing in public would be difficult, if not impossible for stutterers, whereas in fact both of these highly volitional acts can be performed by the worst of stutterers.

The primary and pertinent question therefore seems to be, not that of the presence *per se* of volitional interference, but rather that of the antecedent causes that bring this interference about. By every rule of scientific induction it seems to be established that *a subtle form of emotional reaction, whose chief component is fear, which is set off by the realization of a certain social relationship existing between the speaker and his auditors, together with the anticipation of the possible unpleasant consequences of failure, must be held primarily responsible for stuttering. Volitional interference, inhibitions, and asynergies are symptoms rather than causes.*

Adler's Inferiority Complex Theory. Among the more recent psychological theories of the causation of stuttering should be mentioned that of Adler. He seems to pay very little attention

to the problem of stuttering, but mentions it, seemingly with the desire, not so much to make a serious contribution toward its solution as to use it by way of illustrating the workings of his general theory. He says [29] that the analysis of stutterers has led him to conclude that "their stuttering is an attempt to withdraw, by means of passive resistance, from the superiority of others. It is based on an intensified feeling of inferiority whose persistent and tenaciously held purpose is to watch, examine, and steal marches upon their partner. The main idea is to gain a (decisive) influence by means of a masochistic attitude and to be able in addition to say, 'What would I not have accomplished had I not been a stutterer'? Thus do these patients console themselves and evade their own sensitiveness."

It is unquestionably true that stutterers suffer from a sense of inferiority, but before there can be any justification for Adler's theory that this is the primary cause of stuttering, it will be necessary to establish at least two important facts: (1) That their sense of inferiority always appears prior to their stuttering, and is inherent in their mental make-up, and (2) that, being thus prior to the condition of which it is the antecedent cause, it cannot be a sense of inferiority respecting speech, but must be a sense of inferiority of a

[29] "The Practice and Theory of Individual Psychology," p. 139.

general sort, such as that of the realization of physical or mental inferiority in general.

In the light of the history of geniuses and athletes among stutterers, and in the absence of proof of any correlation between stuttering and either physical or mental deficiency, it would be very difficult to establish the validity of a general assumption of any such realization of personal inferiority. We seem compelled to conclude, therefore, that the sense of inferiority from which stutterers suffer is essentially sequential to the accumulation of experiences undergone in the unsuccessful and humiliating attempts at speaking, and is not an antecedent causal condition. Furthermore, it seems clear that the stutterer's feeling of inferiority, which we are bound to acknowledge, is of a specific character, that is, it is associated exclusively with speaking, and is not a realization of general personal deficiency, since no such antecedent general deficiency can be demonstrated to be characteristic of stutterers.

CHAPTER VI

SYMPTOMATOLOGY

As we have noted in contrasting stuttering with other forms of speech defect, the essential pathognomonic symptom of it is an inability to effect articulate speech under certain, but not all, social conditions. The failure to hold this fundamental fact in mind has led in previous years to lengthy catalogs of symptoms that are of a purely incidental character, such for instance as the kinds of letters or sounds which are difficult to certain stutterers, also the variations in pronunciation, the peculiarities of breathing, and the almost unending variety of purely incidental physiological spasms that accompany the blocked efforts at talking. This method of dealing with symptoms is obviously misleading and harmful. But, so long as one can enumerate symptoms as symptoms and not as disease entities the knowledge of them may be regarded as necessary to the understanding of stuttering as it is to the understanding of physical diseases. With this purpose

in mind a list of the most important symptoms will be set forth in this chapter under the three following general headings:[1]

(1) Physiological symptoms
(2) Psycho-physical symptoms
(3) Mental symptoms

1. PHYSIOLOGICAL SYMPTOMS

(a) Breathing Peculiarities in Stuttering

The physiological symptoms involve the functioning of the three great musculatures of (a) breathing, (b) vocalization, and (c) articulation. In all of these departments of speech we find abnormalities. When one goes wrong functionally, the rest become involved in the mal-function. It is interesting to know that each one of these groups of physiological processes has been considered the source of the trouble at different times during the history of the study of stuttering. Drs. A. and H. Gutzmann of the University of Berlin, who for many years were pioneers in the field of speech disorders, adhered closely to the somatogenic theory of stuttering, and assigned the seat of causation to the breathing functions. They claimed that in the case of stutterers

[1] The facts herein presented are derived chiefly from the author's studies, some of which are referred to in various parts of this book. Chief reliance has been upon "An Experimental Study of Stuttering," *Amer. Jour. Psychol.*, April-May, 1917.

there were permanent breathing peculiarities, by which they could be distinguished from normal persons at all times. Their corrective measures were concerned with the regulation of these breathing processes by drill methods such as would be employed in teaching one to control breath in singing.[2] The author spent many months in duplicating the work of Gutzmann, and of others who have published their studies in this line, but was unable to find any permanent peculiarities of breathing among stutterers. On the contrary his data go to show that under psychological conditions that make normal speech possible, such as reading in concert with the stutterer, abnormalities of breathing disappear. This conclusion is in harmony with the findings of ten Cate, who has also duplicated Gutzmann's work.[3]

Apparatus for Recording Breathing Curves. As a means of registering the breathing curves the author used the ordinary Sumner pneumographs, both for the thoracic and for the abdominal breathing. The records were traced by a stylus on carbonized paper placed over the revolving drum of a kymograph. This made it possible to make an exact registration of the abnormalities

[2] "Die Atembewegung in ihrer Beziehung zu den Sprachstoerungen." Monats. für Sprachheilkunde. XVIII, 1908, 179–201.

[3] "Ueber die Untersuchung der Athmungsbewegung bei Sprachfehlern." Monats. für Sprachheilkunde. XII, 1902, 247–259; 321341.

of breathing which one can notice always in the speech of the stutterer, and at the same time it made possible the study of the functional relations between the thoracic and the abdominal breathing processes. These records were fixed by dipping them in shellac, so that they could be handled and analyzed quantitatively. (Plate A.)

Records of Stutterers Compared with Normal. When a normal speaker talks or sings, the curves show a rhythmic relation between inhalation and exhalation. He will take in a breath and speak or sing it out before attempting another inhalation, or at any rate the break in the process of breathing will not come until he reaches a logical stopping place in the thought which he happens to be expressing. The stutterer, on the contrary, will exhibit all sorts of breaks and illogical interruptions in the flow of breath. He may attempt to exhale at the point at which he should be inhaling, and may gasp for breath where his speech would require exhalation. In normal speech breath is expended economically, and is utilized to advantage in the production of sound. The good singer does not allow his breathing processes to interrupt the flow of voice. Hence the breathing curves of normal speakers will show long exhalation intervals alternating with comparatively short inhalation intervals. In the case of stuttering not only is the normal rhythm of breathing

broken up, but there is a disproportion between the exhalation and inhalation as compared with normal speaking. This disproportion is indicated, according to the data secured by the author, by the following ratios, which express the sums of the time intervals of a typical series of inhalations and exhalations in normal and abnormal speaking:

Inspiration : expiration : : 217 : 1000 in normal speech
" " : : 535 : 1000 " stuttering

This shows that the ratio between inspiration and expiration is more than twice as great among stutterers as among normal speakers, and this of course betrays a very poor economy of breathing.

Speaking generally, the characteristic breathing abnormalities of stutterers may be enumerated under three headings. (1) In the first place there are found retardations, by which is meant the withholding of inhalation or exhalation beyond the point of the demands of normal speech. These inhibitions and blockings of breathing have much to do with the overt symptoms of stuttering as seen by the observer. These symptoms are so prominent and so distressing it is no wonder that their causal significance has been overestimated. (2) In the second place total displacements are found. These are instances of complete breaking up of the normal rhythm of breathing, so that

inhalation may totally displace exhalation and vice versa. (3) In the third place there are interruptions of either inhalation or exhalation after the process has begun, inhalation breaking into exhalation, and vice versa.

The relations between thoracic and abdominal breathing also afford opportunity for the observation of one of the most gross and serious manifestations of stuttering. The author's tabulated results show that in normal speech there is a relatively stable synchronism, but that the crest of the abdominal curve is slightly behind that of the thoracic curve, whereas the trough is slightly ahead. In quiescent breathing there is synchronism. In stuttering the curves get decidedly out of step in every possible way. The thoracic curve, for example, may be ahead of, synchronous with, behind, or even in opposite phase to the abdominal curve. This opposition of phase, which was found in two subjects, but only rarely, the author has found referred to in only one connection, namely, in the serious condition of the paralysis of the diaphragm.

In order to find out what the vocalization processes were doing while the breathing processes were being thus registered a Rousselot microphone was employed to give rough sound tracings parallel to the breathing curves. By this means one could see the temporal relations of both pro-

cesses. The departures from the normal in voice production are radical and of considerable importance in their effect upon speaking. As in the case of breathing, there have been authorities who held that the whole difficulty in stuttering can be traced to the faulty utilization of the voice. A. M. Bell was disposed to urge stutterers to stress vocalization. Voice, more voice, was their salvation.[4] He noted the fact that stutterers, though they cannot talk, can nevertheless sing. His interpretation of this was that in singing the voice was put prominently forward in the mind. If the stutterer could do this same thing in his speech his difficulty would be solved. Scripture also stressed the intonation of words in his treatment of stuttering.[5]

(b) Voice Aberrations

While guarding against the error of stressing the importance of mere symptoms, one must admit that voice aberrations are the outstanding symptoms in the speech records of stuttering. The author finds that these aberrations are of two general kinds. In the first place there appear grave temporal displacements of the voice records in their relations to those of

4 "Cure of Stammering and Impediments of Speech," Volta Rev. XVII, 1915 Phonetic Syllabication, etc., Washington, D.C.

5 "Stuttering and Lisping."

breathing. The stutterer may even attempt to produce sound during the inhalation period. In the second place, there is faulty utilization of the breath in voice production. By watching a stutterer trying to speak one can easily see that he is wasting his breath in fruitless attempts to articulate his words. The registration of the processes of speech of this sort simply make this symptom more strikingly apparent and shows it in greater detail. Ideally, a speaker should utilize the maximum amount of his breath in voice production. The stutterer exhibits an extreme departure from this ideal. Tabulations from a series of observations showed that normal speakers utilized about 90% of their expiration interval in actual voice production, whereas the stutterer utilized only about 36.5%. The rest of the exhalation periods of the stutterer were taken up in aphonic efforts of many sorts, which registered themselves in a variety of jerky distortions of the breathing curves. (Plates B and C.)

(c) Disturbances of Articulation

Organs of articulation comprise all of the structures that are involved in speech which lie above the vocal cords, including the tongue, lips, hard and soft palate, the nasal, buccal and pharyngeal cavities. The purpose of articulation is to mold the voice stream as it

comes from the vocal cords into significant syllables and words. The so-called voiced consonants may be regarded as vowels plus articulatory alterations of the sounds of the vocal cords through interference of the speech apparatus. An identical vocal sound may be thus transformed into wholly distinct speech elements, as we have, for instance, in the case of the sounds of *m* and *n*. The contribution of the vocal cords to the sounds of these two letters is seen to be identical, the difference between them, which we get through the ear, is obviously due to the position of the organs of articulation, i.e., the lips and the tongue in the two instances. The difference between the voiced and the voiceless consonants is due to the temporal sequence of the vocal and the articulatory elements in the case. In such voiceless consonants as *p, t,* and *k,* the vocal cords are inactive until the consonantal explosion takes place. In the voiced consonants, like *b, d,* and *g,* the vocal cords become active slightly in advance of the explosion. This factor has its effects upon stuttering. It seems, for instance, that stutterers, especially those of the spastic aphonia type, have their greatest difficulty with voiceless consonants; hence the familiar repetition of initial syllables, such as those that begin with *p, t,* and *k* sounds particularly. The task of getting over these consonantal stumbling blocks is sometimes

relieved by stringing out a series of sounds such as *ah—ah—ah* before the word to be pronounced. The purpose which this serves is to relieve the tonic cramp of the vocal cords and to get them functioning before the word begins. The justification of such an expedient is seen in the fact that consonants which are difficult when located at the beginning of a word may give no trouble at all at the end, since the preceding vowel sounds have broken up the functional cramp.

Those who have held that stuttering is primarily a consonantal difficulty have in previous times attempted to make out lists of consonants on which stutterers had trouble, and to classify them (the stutterers) into groups on the basis of these lists. There may be a certain degree of uniformity in such lists, a uniformity based upon the principles noted above. But beyond these very general uniformities, it is impossible to deduce any fixed principles. Whether or not any stutterer will stutter on any consonant is determined not so much by the nature of the consonant itself as by the experiences which he may have had in connection with it. It frequently happens that what is at one time a difficult consonantal arrangement for a stutterer will become easy for him; and on the other hand an easy sound collocation may become difficult. Conditioned reflexes and associations are as thick as brambles in the mental and

physiological make-up of the stutterer. The possibility of establishing new associations, however, guarantees that remedial as well as harmful ones can be set up. The fact that such associations grow thus profusely affords the explanation of the inadequacy of short-cut "cures," and "treatments," of the mental surgery technique of psychoanalysis, and in fact points with considerable certainty to a form of educational handling as against the clinical and hospital idea.

Although many think that the absence of stuttering in singing proves that only consonants give trouble to the stutterer and though some specialists have relieved the trouble by introducing musical quality into the speaker's talking voice, there are writers who maintain that it is the vowels rather than the consonants that give trouble.[6] The notion of vowel stuttering, which seems to an auditor to be an inability to leave off a vowel sound once it has begun, arises from what the author takes to be a misinterpretation of what is really happening. This seeming inability to leave off a sound after it has begun is in reality an inability to effect articulate speech by connecting the sound being given with the succeeding one, so as to form significant, meaningful speech. It needs to be stressed over and over again that it

[6] Bluemel, "Stammering and Cognate Defects of Speech," 1, pp. 184–185.

is not with the mere *elements* of *sound* that the stutterer has difficulty. It is at the point where meaningless sound elements pass into significant speech that he has difficulty.

The Law of Physiological Inertia. Bonnet has called attention to a physiological law[7] which would seem to throw some light on the sound repetitions characteristic of certain types of stuttering. This law describes a sort of physiological inertia, by virtue of which, in a complicated series of functions involving co-ordinated acts, if one of these acts cannot be executed, through any form of inhibition, the preceding ones will continue to function until the inhibited act can take place. It is quite certain that repetitions, be they of consonants or vowels, do not occur except where there is a difficulty of transition from them to succeeding sounds, in the formation of significant speech. Back of this difficulty, we may add, is the consciousness of the social reference and significance of the words to be uttered.

Generalizations as to Physiological Symptoms. The above facts lead us to the following generalizations concerning the three physiological processes of speech: (1) In the first place, stuttering cannot be assigned to the functioning of any single musculature involved in the production of

[7] "Etude critique sur parente morbide du bégaiement avec les tics et les crampes fonctionelles," Bordeaux, 1906, p. 52.

speech. It involves them all, symptomatically. Again (2) the essence of the malady is, so far as physiological symptoms are concerned, the asynergic interfunctioning of the three speech musculatures. Finally (3), the fact that no uniformity can be shown to exist in the types of asynergies shows that they are conditioned through experience, and are not of a fixed organic or physiological character. Moreover, the verdict of psychiatry has been that such inconsistencies among the symptoms of a disorder indicate that it is a psychogenic disorder.

When one realizes that each one of the three musculatures of speech is in itself a complex system of muscles, and that in order to effect proper enunciation each one must work perfectly within itself, and at the same time must co-operate with all the others, i.e., that there must be both intra- and inter-co-ordination of action, one can understand how easily asynergies may arise. Thus considered, it would seem that speech pathology might be expected to occur even more frequently than it does.

Speech asynergies seem all the more inevitable when one takes into account the fact that the muscles in two of the three systems, namely, those of breathing and those of vocalization do not admit of direct mental imaging, whereas the organs of articulation, with which these other two must

co-ordinate, are capable of representation in direct imagery. Neither the diaphragm nor the vocal cord muscles can be imaged directly in consciousness. As we have shown elsewhere (Chapter V) stuttering cannot be reduced to imagery peculiarities alone. At the same time it is true that asynergies, which under certain conditions may acquire morbid emotional associations, are more likely to occur in the functioning of musculatures that are so complicated as not to admit of clear imaging. One is not likely to hesitate about crooking a finger, since the act as a whole is so easily reproduced in consciousness.

Stuttering Compared with Tics. Besides the asynergies of the three systems of muscles involved in speech, stuttering, as a rule, exhibits also many accessory and purposeless movements, which sustain no logical relation whatever to speech production, but are to be interpreted as overflow activities resulting from the emotional stress and the nervous tension, which are characteristic of stuttering. These accessory movements resemble muscular tics, but are to be differentiated from them in certain important respects, as we have seen by the fact that a tic movement comes apropos of anything or of nothing. It arises spontaneously as a successively recurring habit, with sufficient persistence to cause its repetition without the presence of any external

stimulation. Stuttering, on the other hand, arises only apropos of the realization of the necessity to speak in certain social situations. Concentration of attention, as Bonnet has pointed out,[8] will control a tic movement, but will tend to exaggerate the accessory movements of stuttering.

Davies, writing on the subject of aphasia,[9] seems to have failed to note this very important distinction. He says, "Stuttering we may suppose is caused by inattention to the mechanism of speech production, and is always accompanied with nervousness which aggravates the defects of the patient's speech sounds." This popular misconception is the all too common speech drill method of therapy.

These accessory movements take various forms. They may be jaw movements, lip-trembling, facial contortions, breathing spasms, twisting of the neck or head, whistling, and even hand-, feet-, and body-movements. Tics have been thought to be derived from some originally purposeful movements. If this be true, they differ again in this respect from stuttering, for the accessory movements of stuttering sustain no logical relation to the process of normal speech, except sometimes as desperate efforts to break up the tonic cramp of the vocal apparatus.

[8] *Loc. cit.*

[9] "Speech Reactions and the Phenomena of Aphasia," *Psychol. Rev.*, 1926, No. 6. p. 422.

Stuttering in Other Processes than Speech. It is well to note that the asynergies found to occur in speech are not unlike those found in other physiological functions, except in the severe and morbid emotional associations that cluster around them because of the part which speech plays in the mental and social life of the individual. Scripture, for example, reports a case of stuttering in writing. The author has found one case of stuttering in swallowing. It is a frequent observation in hospitals that urination or defecation may become impossible for certain patients when they are under the scrutiny of others. Nurses must overcome these inhibitions in the sick in order to induce normal evacuations.

The movements of the fingers will also furnish examples of asynergic functioning of this sort. The author has made small collections of typewriter errors, such as *buloe* for below, *theses* for these, *dwon* for down, *nrormal* for normal, *fornt* for front, etc., etc. In most of these letter misplacements the requisite number of letters is present, but they are in wrong order. Sometimes there is also found a repetition of a letter which has already been made, but made out of its proper order. So far as co-ordination of movements is concerned this is what occurs in stuttering. The stutterer articulates where he should vocalize, and vocalizes where he should articulate. As we

have also seen, he breathes out of time in relation to his voice production. The functions of speech, in short, see-saw back and forth like a balky team of horses, unable to co-ordinate their action in correct temporal sequence. Errors in typewriting and in any other form of complicated action are much more likely to occur when one is under scrutiny and in this respect again they resemble stuttering. It is likely that if one could induce the emotional states and the fear of embarrassment through failure, which go along with speaking, asynergies or stutterings in typewriting would be as numerous among typewriters as are those of speech, and they would present the same marks of morbidity.

It has been held that only a *general* motor impulse emanates from the cortical centers of motor control, and that the function of co-ordinating any complex processes, like those of speech, belongs to lower and more automatic centers. It is quite true that, when any complex process has been sufficiently learned to become automatic, any interference by volitional effort will have a tendency to cause confusion, and when such interference is induced under social scrutiny, it will be recognized as the phenomenon of self-consciousness, which is a hindrance to the smooth running of any complex physiological process. The less fixed the automatic processes are the more likely they are

to suffer functional distortion, and the more likely the individual is to suffer embarrassment from this distortion the more likely is the process to become permanently disturbed. The likelihood of volitional interference's upsetting automatic functions is well pictured in the following familiar rhyme:

> A centipede was happy quite
> Until a frog in fun
> Said, "Pray, which leg comes after which?"
> This raised her mind to such a pitch,
> She lay distracted in a ditch,
> Considering how to run.

It is obvious that asynergies of all sorts are more likely to arise in those cases in which the physiological processes have not become automatic, and it is equally obvious that where the asynergies are accompanied by strong emotional disturbances they are more likely to become fixed and pathological. Pre-school children, among whom we find the majority of cases of stuttering to originate, afford just these conditions. Their language functions especially are in the formative stage, and the capacity to excite an emotional response which words, both heard and uttered, have for them is unique.

Speech Asynergy a Conditioned Response. A speech asynergy interrupts communication, where speech is being used for purposes of social inter-

course,—and it is only when speech is being thus used that stuttering ever arises—and hence may be a cause of embarrassment. Each experience of such an embarrassment in turn begets a tendency toward an increase of volitional interference. And so the vicious circle goes on in increasing strength. Krasnagorski, who first applied Pawlow's technique to the study of normal children, draws this general conclusion relative to the artificial establishment of reflexes in children:[10] "Each phenomenon of the external world, which is received by the peripheral systems of the child, can be brought into temporary association with a motor, that is, a secretory, act. All possible stimuli of sight, hearing and skin can be metamorphosed into specific excitants and call forth a definite motor act if their effect as stimuli is temporarily associated with the motor act several times." Neither the work of Pawlow nor that of Krasnagorski has revealed anything new to psychology in their respective fields. It is for the perfection of a useful experimental technique, rather than for the discovery of new laws that we are indebted to them. Their work sustains an important relation to the problem of stuttering in that it makes conceivable the experiential forma-

[10] Quoted from "Jahrbuch f. Kinderheilkunde u. physische Erziehung," 1913, p. 375, by Mateer, in "Child Behavior," p. 79.

tion of the hampering motor tendencies, such as those from which the stutterer suffers. The history of the study of stuttering, as we have pointed out, reveals a long search for inherent, extra-experiential peculiarities, physical or mental, that make the stuttering child somehow different from other children. This assumption, it is easy to see, has been at the bottom of much of our erroneous thinking about the problem, and has been responsible for much of the floundering in our attempts to remedy it.

2. THE PSYCHO-PHYSICAL SYMPTOMS

Looking next at the psycho-physical (by which we mean body processes that are easily affected by mental states) symptoms we may point out those that appear in the form of changes in (a) blood distribution, (b) heart rate, and (c) galvanic changes. The author is not aware of any attempt to study these phenomena in connection with stuttering prior to his own investigations [11] and hence cannot give a history of previous researches.

(a) Records of Changes in Blood Distribution

For ascertaining the volumetric or blood distribution changes during stuttering use was made of the Lehmann plethysmograph, with the usual

[11] *Amer. Jour. Psychol.*, XXV, pp. 201–255.

kymograph recording devices similar to those already described in connection with the description of breathing-curve records. The high points in the curves as traced on the carbonized paper represent points at which the blood has rushed to the periphery, and hence into the hand which has been inserted in the instrument. The low points, on the other hand, indicate those at which the blood has returned to the central blood vessels. These blood changes are nothing more than the phenomena of blushing and pallor common to emotional experiences in general. The recording devices afford more accurate means of observing and quantifying them. It was found in the study by the author that in the majority of stutterers any sudden concentration of attention, as for example, when they were called upon to read, resulted in what is familiarly known as the "attention drop," which marks the movement of the blood toward the central blood vessels. There was also in a great proportion of cases a return of the blood from the central vessels to such an extent that the peripheral system showed dilatation, which lasted usually until the end of the stuttering period. This was characteristic of those subjects who showed exertion in their efforts at speech. The rises in the curves were characterized by fluctuations as a rule, but there was a general tendency to maintain a level higher

than the normal, though, since the time for a complete revolution of a kymograph is limited, one cannot say but that ultimately the blood would return to normal distribution, especially in cases in whom the emotional state and the excessive efforts tend to subside.

Investigators have not always agreed as to their findings in the study of the circulatory changes accompanying mental processes. And sometimes the same investigator will find different results at different times in the study of the same phenomenon. The most important finding in the author's opinion, from his study, was the fact that both the amount of the general rise, and also the distortions of the plethysmograms, are correlated roughly with the degree of stuttering found in the patient, as approximately estimated. This fact was arrived at by the study of records made by normal persons while speaking or reading, by the study of records made by stutterers while talking normally, or while stuttering less than usual, and by the comparison of these records with those made during severe stuttering.

Studies of Robbins on Vaso-Motor Changes. S. D. Robbins, Director of the Boston Stammerers' Institute, duplicated in Harvard University the studies of the author in this field.[12] When he comes to make a comparison of the re-

[12] *American Jour. Physiology,* XLVIII, 1919.

sults of the two studies he gets the work of Shepard so confused with that of the author that it is difficult to get the straight of what he means to say (pp. 286 and 293, e.g.). If Shepard has done any work in this field the author has not found an account of it. Besides ascribing to the author errors of technique of which he is not guilty, Robbins goes on to say regarding the author's method that "no attempt was made to make a careful diagnosis of each case, hence the reader does not know whether these cases were primarily mental or physical stammerers." Hoping to find a model diagnosis for future use the author turned to where he gives the description of his cases (p. 304), and finds nothing of the sort, nor did he tell what it was more important to know, namely, the difference between "mental and physical stammering." His summary and conclusions fail to state whether his results apply to the one or the other or to both of these two types. What is physical stuttering, anyway?

Although his records show the usual attention drop in the curves, both in the normal and the abnormal speakers, and ultimately they also show the tendency to rise, though in the case of his stutterers only after the stuttering ceases, he finds just the opposite results from those of the writer, namely, that stuttering is characterized

by vaso-constriction of the peripheral organs. On looking at his published plates the author cannot but wish he (Robbins) had allowed his speaking interval to last over a greater length of time. If this had been done the two findings might not prove to be so far apart as they may seem.

The Real Meaning of Vaso-Motor Changes in Stuttering. So far as the author's conception of stuttering is concerned it would make no difference whether vaso-dilation or vaso-constriction is shown to take place during stuttering. In any case such changes are by him considered accompanying symptoms and in no sense important antecedent causal factors. It is therefore not so much with respect to the differences in the plethysmograms themselves as in the interpretation of their significance that our respective points of view are at variance. He says (p. 321) that "stammerers cannot speak without hesitation during peripheral vaso-constriction." In a subsequent study,[13] which he made on a stutterer with a trephined skull, he confirms his previous findings and concludes further that "it is reasonable to conclude that increase in brain volume is an important factor in the production of stammering."[14]

[13] *Amer. Jour. Physiology,* LII, 1920, p. 14.

[14] In a later book (1926), "Stammering and its Treatment," p. 13, Robbins reiterates this theory of causation, but says that

This is obviously another form of the physiological conception of stuttering, the merits of which we have already had under consideration. The older forms of this type of theory concerned themselves with peripheral processes. This theory concerns itself with central, though none the less physiological, processes. The ever recurrent question faces us here again, namely, as to *why these vaso-motor disturbances affect the speech processes of certain persons only, and why they affect these persons only under certain types of situation.* Does peripheral vaso-constriction always cause stuttering? If not, what causes the exceptions? If exceptions must be referred to conditions that bring them about, how can we ignore these conditions when enumerating our causes? In short, are vaso-motor changes causes or symptoms?

As bearing upon this point the author submits the results of the following experiment, which he made repeatedly: A stutterer with pneumograph and plethysmograph in place is given a card to read aloud so as to record the breathing and blood-distribution changes. After recording these changes on the kymograph in the usual way, the experimenter says to the subject that both are to read the same card in concert. In all such

back of the "underlying physiological cause" is the "still more fundamental psychological cause," in the way of various sorts of emotional states, some of which he enumerates.

tests the first records have shown the usual physiological disturbances, whereas the second approached normality, and in certain instances were free from any observable distortions. Why this difference? Is there any *physiological* difference between reading alone and reading in concert? The author can understand this difference only by referring it to differences in the mental attitudes of the patient in the two situations. If mental attitudes can be said in truth to account for nothing in this case, then they would seem to be of no causal significance anywhere else in human experience, and we should be justified in treating them as non-existent, according to extreme behaviorism.

(b) Pulse Rate in Stuttering

When we came to study the changes in heart rate, in order to reduce the effects of the novelty of laboratory conditions upon the subjects to as low a point as possible, tests were carried on for more than a year. All preliminary trials were excluded from the reported results. In taking the readings, three points of measurements were chosen. (1) The first was taken prior to the speaking interval, but just after the speaker had been told that he would soon be called upon to speak or read. (2) The second reading was taken at the beginning of the speaking interval. (3)

The third was taken immediately after the speaking interval.

The lowest pulse rate found in the first interval was 72, the highest was 120. The readings of the second interval ranged from 78 to 129. All of these cases were adults except one, a boy of twelve. After eliminating his record the averages for the three periods were 88.9, 99.1, and 97.2 respectively. Contrasted with the normal pulse rate of 72, these records point to a physiological disturbance that cannot but be of grave significance to the health of school children who are subject to it so constantly. The acceleration before speaking begins shows that the change was not due to physical exertion, which naturally would be slight in such tests as these. Hence it must be due to emotional disturbance set up by the requirements of the task. The acceleration here recorded can of course give but an inkling of what happens to a child when facing an actual situation in a classroom, or in confronting other real situations such as he has to face many times a day. Stuttering children often report their excitement and fear when expecting to be called upon to recite. One clinic case, who was a splendid specimen of physical manhood, a star player on a university football team, reported that he could feel his heart thump violently when he began to realize that he was about to be called

upon to recite. Is it any wonder that the minds of stutterers become blank of ideas and of images as well at the very times when they need most to be able to think? This nagging intermittent sense of inability to talk at the right time is hardship and handicap enough surely. But added to it in many instances is the realization of being rated as an inferior or incapable student. In this we have one of the super-tragedies of childhood to which we have not yet become sufficiently civilized to pay adequate attention. (Plates D and E.)

(c) Galvanic Changes Found in Stuttering

The experiments in connection with the psychogalvanic reflex lasted only about three months, and are reported as preliminary, with some possible suggestion as to their value as a means of arriving at physiological symptoms. This means of recording emotional changes seems to be coming into more serious consideration than it had when the author's studies were made, and hence he feels disposed at least not to abandon it as a means of studying the phenomenon of stuttering from the physiological viewpoint. For the benefit of those who are not familiar with this experiment it may be said that it has been found that under emotional disturbances there are changes in the electro-motive force of the body.

These changes are supposedly brought about by tension or contraction of internal muscles, in somewhat the same fashion in which similar changes are caused by the contraction of the heart muscles, which contractions are recorded as cardiagrams by the same sort of device. In the author's preliminary experiments the bodies of the subject were placed in circuit with one dry cell and a galvanometer by connecting each hand with a terminal of the circuit. The terminals used in studying the reactions of the stutterers were jars of saturated solution of table salt placed conveniently on the sides of the chair in which the subjects were seated. At the bottom of these jars a hand grip was placed, so as to maintain as nearly as possible the same degree of immersion in the solution. As the subject's hands were out of use the reading cards were placed in a rack on a stand in front of him. The deflections of the galvanometer were recorded by following with a stylus the light reflected from the mirror of the galvanometer as it moved to and fro on the scale. To the stylus was attached by means of cords and pulleys another stylus which made tracings on a revolving kymograph drum. These records were synchronized with the efforts at speaking as nearly as could be with the clumsy device. This means of making the tracings was inaccurate as the swing of the galvanometer was

sometimes difficult to follow, even though a drag was placed upon the coil to slow down the rapidity of its swing. But after making allowances for the unavoidable limitations of the apparatus the data seemed to justify the following conclusions: (a) The stutterer is subject to a period of electro-motive disturbance prior to, but in anticipation of, the speaking interval, (b) this condition continues in varying degree throughout the interval of stuttering, and (c) as with volumetric changes, above described, the degree of galvanic deflection varies approximately with the estimated severity of the stuttering.

Interpretation of the Physiological Symptoms. In interpretation of the meaning of the breathing, vocalization, articulation, volumetric, and galvanic changes above described the author holds the opinion that to consider them understandable in disregard of their situational excitants is a curious bit of "hysteron-proteron" thinking. It is the fallacy of analyticism, the error of attempting to give an adequate account of mental phenomena in isolated bits, and out of the relational settings in which they arise. It is to be hoped that the psychology of the Gestalt will help to clear our minds of such errors as these. Besides the scientific and theoretical value of the point of view of the Gestalt psychology the author sees in it here an application that is of con-

siderable immediate value. If the point of view of the Gestalt psychology be valid, then the physiological theory of stuttering cannot be justified. The contentions which we have lodged against the physiological theories of stuttering are, we believe, the same in essence as those which are being urged by the Gestalt psychologists against behaviorism as a system of psychology.[15] The application of behaviorism to the problem of stuttering could not possibly get us any further along with it than the physiological theories already mentioned. In holding that stuttering is due to cerebral congestion, for instance, Robbins, to be consistent, would have to recommend that as a remedy the stutterer, in order to secure relief, carry around with him some kind of drug to reduce this congestion whenever he anticipates the necessity to speak. The moment you admit the influence of the conscious realization of a social situation in the causation of stuttering, then these physiological changes must be looked upon as accompanying symptoms. The author cannot by any stretch of the imagination get around regarding the realization of certain sorts of situations as important factors of causation in the case of stuttering, in the light of both experimental evidence and common sense experience,

[15] Koffka, "The Growth of the Mind," *passim;* Helson, *Amer. Jour. Psychol.*, XXXVI, 1925, pp. 345 ff., *et passim.*

and hence he feels compelled to list these physiological changes as being primarily accompanying symptoms. They act as causal factors only when the vicious circle has started its rounds.

The list of symptoms herein dealt with are those with which the author has himself had experimental experience. It could be added to indefinitely. There are, e.g., voice quality, and the almost endless variety of phonetic peculiarities that could be exhibited by the use of a more accurate sound-recording device than the ones in use when he was interested in that particular phase of the subject. To the already long list of secondary symptoms Starr has added[16] the results of a biochemical investigation of the condition of the saliva of stutterers. He finds that 73.7% of his cases were "sub-breathers," that their organisms were consequently overloaded with carbon dioxide, and hence their mental faculties were dulled. They were therefore fatigued and their work was done under pressure.

There is certainly no end to the list of metabolic changes which one may expect to find resulting from the mental and emotional experiences which the stutterer undergoes in his attempts to speak. Unquestionably not the saliva

[16] Starr, Henry E., "The Hydrogen Ion Concentration of the Mixed Saliva Considered as an Index of Fatigue and of Emotional Excitation, and Applied to a Study of the Metabolic Etiology of Stuttering," *Amer. Jour. Psychol.*, 1922, 33, 394–418.

alone but all the other body secretions and excretions would be found to exhibit determinable changes, but whether the study of these changes will lead to a better understanding of the emotional experiences that brought them about is open to question. What warrant Starr gets from his findings for suggesting a "metabolic etiology" of stuttering is to the author incomprehensible.

The Symptoms Themselves Are Serious. However, we need to stress the inevitably serious effects which these profound physiological disturbances are bound to have upon the physical and mental health of children. Psychology and education should be far from ignoring experiences that are capable of producing such violent effects in the life processes of children as those indicated by the registrations above mentioned. Psychiatrists have had much to say particularly in recent years about the permanent effects of emotional experiences such as those that stutterers undergo many times every day in thousands of school rooms. Can we imagine that these experiences leave behind no residual effects? Do pleasure-pain experiences fail of their usual effects in the case of stutterers? How can a child grow up to be normal who is compelled to look forward to his school day with fear and dread, which, as we have seen, amount even under artificial conditions to physiological shock? Wholly aside

from the question of speech handicap, stuttering children should be shielded from experiences of this character.

3. MENTAL SYMPTOMS

When we come to the enumeration of the mental symptoms of stuttering, we find it necessary, in order to avoid a misinterpretation, to restate the point of view adhered to in this book, namely, that among the mental phenomena associated with it rather than among its physiological manifestations must we look for its primary causes. In the light of the facts now available, facts which are to be reviewed in this connection, this conception is basic to an understanding of the disorder and hence is also basic to any system of treatment that may be attempted. However, it does not preclude the possibility of recognizing the presence of mental as well as physiological phenomena as symptoms, and these must of course be mentioned in order to offer even an approximately complete clinical picture.

In the work of cataloging mental symptoms there are certain difficulties. In the first place we have the difficulty, familiar to experimental psychology, of correlating with certainty the physiological changes, the registration of which, as we have seen above, is practicable, with the mental experiences which are assumed to be their sub-

jective counterpart. Without raising theoretical questions we submit the above lists and tabulations of physiological phenomena in the way of breathing peculiarities, vaso-motor and galvanic changes as *indications of emotional alterations* taking place in the mind of the stutterer at the time of their appearance. If this be begging a question in psychology the author will have to accept the consequences of doing the begging deliberately.

Another difficulty is that of securing dependable introspective data. This difficulty grows, in the first place, out of the fact that it is a rare thing to get clinical subjects who have had sufficient training in reporting data of this sort, and in the second place it is inherent in the very nature of the phenomenon. During stuttering the mind of the subject is often so blurred and confused that even on immediate retrospect his memory is hazy and vague as to details. Data have, however, from time to time been available from subjects who were sufficiently mature to understand the nature of the reports desired. The characteristic report of adult cases is that of fear, anxiety, uneasiness, distrust of themselves, lack of confidence, dread, feelings of strain, mental tension and the like. A typical report from an intelligent subject [17] said, "When I am about to speak,

[17] *Amer. Jour. Psychol.*, XXV, p. 234.

I am usually in a somewhat excited state, sometimes more so than at others. When I get into that state I am unable to control myself and I fear the outcome. I experience an internal trembling and frequently wonder if I show my excitement to any great extent. I wonder sometimes as to the effects of this on my physical condition. Often I wish that I could somehow vanish when I am in this condition."

Still another difficulty grows out of the fact that in developed cases of stuttering the vicious circle is so well wrought that it is often difficult to disentangle the antecedent and causal factors from the sequential and symptomatic. The motor processes of stuttering in the way of contortions of the articulatory muscles will tend inevitably to leave behind, all things else being equal, a disposition to recur. That it shows a disposition to recur is about all that can be said about stuttering when it is diagnosed as a mere motor habit. Regarding this interpretation of stuttering as simply a troublesome motor habit there are serious psychological objections. In order to point out that stuttering cannot be thus simply conceived, it is only necessary to call attention to the law of learning that is operative in all ordinary experiences of the acquisition of skill. This law states that motor processes attended by failure and unpleasantness tend to

cease to function. Even an inherited reflex, such as the striking reflex of the fish, or the pecking reflex of the chick, may be blocked by the introduction of unpleasant consequences. Now, stuttering, as a motor act, is accompanied by failure and unpleasantness, and yet, instead of being progressively eliminated by these psychic factors, according to the usual formula of habit formation, it becomes progressively more likely to recur. The ideas and affective conditions attendant upon stuttering, far from acting negatively as deterrents, come to function as fixed ideas and obsessive associations, serving to increase the liability of the recurrence of the unsuccessful reactions. The unsuccessful reactions in turn bring failure and humiliation, and so on and on.

Mental States as Cause and Effect. This vicious circle, in which the emotional states function now as effects and now as causes, may itself be pointed to as one of the characteristic peculiarities of stuttering. In this peculiarity we see a resemblance to certain familiar phobias of hysteria, such as the fear of blushing, of sweating, nose-bleeding and the like. The author secured from the late Dr. Cowles of the McLean Hospital, Waverly, Massachusetts, the record of a case of the fear of sweating that is an example of the phenomenon in question.[18] This subject was fre-

[18] *Amer. Jour. Psychol.*, XXV, p. 233.

quently distressed when at church or social gatherings by feeling very warm and by excessive perspiration. The hospital reports state that the patient might be playing cards when suddenly he would think that he was going to get hot. He would not sweat for a time perhaps, but the idea that he was going to sweat remained in his mind; he tried to get rid of the thought of sweating; he would become worked up and stirred up, feel a thumping about the heart, a disagreeable sensation in the region of the stomach, and the perspiration would come out.

Another case is that of the fear of nose-bleeding.[19] A young man became subject to nose-bleeding, which was generally preceded by vasomotor disturbances like blushing, blanching, chill, and general *malaise*. If he happened to leave his handkerchief at home, or if he found himself in a place where it would be particularly distressing for his nose to bleed, it would then be most likely to bleed. If while attending a lecture at the university the thought of nose-bleeding occurred to him it would bleed.

Expectation Neurosis. All of these phenomena, including stuttering, are closely akin to what is called "expectation neurosis," which Bleuler describes as follows:[20]

[19] *Russki Medizinski Vestnik*, December, 1901.
[20] "Textbook of Psychiatry," p. 559.

> Following one or more bad experiences in any kind of event (reading, writing, swallowing, urinating, after having been dazzled by a strong light, or surprised through a loud noise, etc., into infinity) the patient predisposed in this sense becomes dominated by the idea that he can no longer accomplish the function in question, or that he must suffer pain through it, and this idea becomes a reality. This results in paralysis of a definite complex of movement, or painful paraesthesia. Besides speech stuttering, which under conditions should be included in this category, one notes a number of other forms of "stuttering" (stuttering in walking, writing, urinating, etc.); psychic impotence naturally also belongs here, likewise Moebius' akinesia algera. . . .
>
> The expectation neurosis usually develops slower than the traumatic neurosis, to which it shows a certain resemblance, and also cannot be sharply differentiated from many hysterical syndromes. . . .
>
> Left to itself or in improper treatment the suffering usually becomes aggravated and continues indefinitely. But once the diagnosis is definitely made, it is possible to bring about a cure in a few weeks or months through a definitely laid out psychic treatment such as enlightenment, calming, and re-educating.

Excessive and Misplaced Volitional Effort. Attention to the volitional control of the trend of thought processes becomes markedly altered in stuttering. The thoughts of the stutterer become introjective in that they, under embarrassment, tend to turn backward upon himself, and center upon his predicament, especially upon his distressing efforts at speech, rather than upon the subject about which he is speaking. And for this

reason, while stuttering is going on, or is imminent, the thought processes as well as the speech processes become disturbed,—a thing that teachers are not at all likely to be mindful of in their handling of stuttering children. As a rule teachers assume that what a stuttering child finally manages to utter, after much effort and mental disturbance, represents the best that he is capable of thinking on the subject about which he is trying to recite. This is far from being a correct assumption.

Volitional motor effort or strain tends to become accentuated in the direction of certain single groups of the muscles involved in speech to the exclusion of the rest. As a general thing, if left to himself, the stutterer will center his exertions upon the articulatory processes and leave his breathing and his vocalization, no less than his ideation to take care of themselves. The processes of speech are, as we have already pointed out, so complex that even were we to center our efforts upon them to the exclusion of the thoughts to be expressed, asynergies would undoubtedly arise. In fact we realize that during the period of the acquisition of volitional control of the speech functions, when we may assume that effort is more exclusively concerned with the motor acts, stuttering is more likely to arise than at any other period of life. When in addition to con-

trolling the functions of speech the thoughts themselves must be co-ordinated with these functions, the likelihood of the rise of asynergies is greatly increased. As we have elsewhere pointed out, many of the most important speech functions do not admit of direct imaginal representation in consciousness, and hence we are deprived of this factor of volitional control. Tompkins, whose theory of stuttering we discuss elsewhere (p. 160 ff.), regards this misplacement of volitional effort as the origin and cause of the disorder. We cannot accept this theory as a complete explanation of stuttering since it leaves us with the main question unanswered, the question, namely, as to why this morbid volitional interference takes place in certain persons and not in others, and why, even in the stutterer himself, it takes place only under certain situations and is by no means a constantly appearing characteristic of his speech. We therefore feel compelled to list it, as we do here, among the symptoms of stuttering as one of the most important of these, and one that has a strong tendency to join our vicious circle.

Mental Imagery Involved. In Chapter V we have attempted to state and criticize the theory offered by Swift and by Bluemel, that stuttering is due to temporary disturbances in the mental imagery of the stutterer at the time when he is attempting to speak. There is no question but

that pronounced changes in the imaginal content of consciousness do take place under these conditions. But here again, as in the case of the misplacement of volitional effort, we are called upon to account for the transitoriness of this condition. So long as we assume that the stutterer is capable of forming mental images and yet under certain conditions we find that this capacity leaves him, we have made no progress toward understanding his disorder, until we can offer some explanation of why this temporary loss occurs. Hence we prefer to list the disturbances of mental imagery also among the accompanying mental symptoms of stuttering.

Association Disturbed. The processes of association are so intimately bound up with those of thought and imagery that it goes without saying that the processes of each are affected by the changes of any of the rest. It does not seem possible to accept the theory that stuttering is an "associative aphasia" of an organic type, or that the processes of association that are linked up with it lead always to a single form of complex that has been set up by a definite traumatic episode. We have seen (Chapter V) how this Freudian formula has, in the hands of those who are familiar with its use, failed to work as it is claimed to work in other functional disorders. The processes of association in stuttering are not

unique; they are more highly charged emotionally doubtless than is the case in other ordinary mental experiences, and their emotional colorings attach themselves to relatively more complex social situations. But that highly emotionalized associations of other sorts than those of stuttering may attach themselves to an almost infinite variety of experiences we have seen from the description of the "expectation neurosis" given above. In fact there is nothing in the associative processes found in stuttering that has not already been brought under the formulæ of general psychology and especially under the formula of conditioned reflexes as described by psychologists who approach the study of their science from the standpoint of behaviorism.

Suggestibility of Stutterers. Janet[21] counts the presence of suggestibility as one of the three major symptoms of hysteria. In this characteristic we have a mark of resemblance to stuttering. The author has found by actual test that not all stutterers are easily hypnotized, as Janet claims to be the case with hysterics, but at the same time they are the constant victims of *auto-suggestion* when it comes to their difficulty of speech. Perhaps the most outstanding indication of the suggestibility of stutterers as a class is the wide variety of remedies to which their malady yields.

[21] "Major Symptoms of Hysteria."

Remedies varying all the way from surgical operations on the tongue to psychoanalysis have yielded favorable results. Osler has somewhere said that perhaps 80% of the therapeutic value of drugs lies in the faith inspired by the personality of the physician. One would scarcely know where to put the percentage in the case of those functional ailments like stuttering that require no drugs in their treatment. It is therefore not strange that the history of the development of "cures" is a long one. It *is* somewhat strange that even yet in reports of the treatment of cases of stuttering, the factor of suggestion is so completely overlooked as the probable source of the success reported by the enthusiastic exponents of certain sorts of therapeutic procedure. We have illustrated this tendency in Aikins' report of "casting out the stuttering devil" (p. 146 ff.). We should like to add here what seems to be another example of this mistake. Bruce [22] gives the history of the treatment of a stutterer by Dr. Dattner, a German physician. His case was a man 36 years of age, who had stuttered from boyhood. The history of the case contains a report of diphtheria at the age of 9. Considering that this was responsible for his trouble, physicians had treated him for throat paralysis, but with no benefit. Dr. Dattner assured him that his diphtheria was not

[22] "Handicaps of Childhood," pp. 226 ff.

the cause of his trouble, and that his dread of speaking was caused by, not the cause of, his stuttering. He assured him that the stuttering, in turn, was caused by some forgotten experience of the past, which he (the physician) was going to try to discover. By the usual psychoanalytic procedure it was found that at the age of 8, prior to the date of the diphtheria, the patient had suffered a severe fright by an experience with a huge black dog. The memory of this experience had virtually (?) faded from his conscious memory, though Bruce says, "He used to lie awake, he remembered, thinking of the dog; he used to dream of it; the thought of it was always with him."

After this mental probing, and after explaining to the patient how such experiences would function in the causation of just such troubles as he was having, Dr. Dattner made the following statement to him: "Your stammering, I can assure you, has been nothing more than the external manifestation, the symbol, of its (the fright's) continuing presence, and of the deadly power it has had over you—sensitive, impressionable child that you must have been. But I can also assure you that your stammering will now come to an end; for we have not only found its cause in the subconsciously remembered shock of your boyhood, but we have actually removed that cause by the very fact of recalling it to your conscious

recollection and, consequently, finding a normal outlet for the repressed emotions."

As a result of—what, shall we say? the stutterer is reported as having become able once more "to enjoy the blessing of a facile, flowing speech." The author is unable to imagine how suggestion could have been more powerfully reinforced than it was in this case, and, considering the functional character of the disorder in question, and the well authenticated results of suggestion under other less favorable conditions, he sees no reason to assume any other factor in the causation of the relief experienced by the patient. Hence, with all respect to contrary opinion, he desires to submit the report of this case not as a triumph of psychoanalysis applied to stuttering, as Bruce would have us to regard it, but as indicative of suggestibility as a mental symptom of stuttering.

When Baudouin [23] describes the auto-suggestions that beset those who are subject to stage-fright, he is at the same time describing the mental hauntings that constantly nag the stutterer. Using Bonnet's words he pictures the singer as saying to himself, "But you are panic-stricken; you feel certain that when the time comes you will be seized with stage-fright. You are sure that you will be terrified by all the eyes that will be concentrated on you when you appear on the

[23] "Suggestion and Auto-Suggestion," p. 183.

platform; you will become uneasy, will sing wrong notes, and will finally break down."

What is the remedy for this affliction that is so much like, if not identical with, stuttering? Is it more singing in the studio, more scale running, more breathing exercises, more *private* lessons? Such are the types of remedies we prescribe for the analogous affliction of stuttering. But Baudouin, following Bonnet, prescribes quite a different corrective program, sketched somewhat as follows: "Isolate yourself in a room . . . lie down . . . close the eyes . . . relax your body . . . stop thinking . . . say to yourself, 'I don't suffer from stage-fright; I sing well; I am perfectly easy in my mind.' . . . Repeat the process several times. . . . Have a number of 'sittings' every day with yourself . . . especially just before going to sleep (the hypnoidal state) . . . and when awakening in the morning."

This remedy, says Bonnet, is effective.

The Influence of the Social Situation. Finally a mental symptom may be added that, in the author's opinion, should be counted pathognomonic, in that it separates stuttering sharply from all other forms of speech disorders. By this symptom we mean that stuttering is affected by the presence of others and by the social relations existing between the speaker and his hearers. To this characteristic of stuttering we have devoted

Chapter VII. We therefore need only to mention it here.

Illustrative Plates [24]

Typical records are here reproduced to illustrate certain physiological phenomena that accompany stuttering, not all of which are amenable to detailed description or tabulation. The records read from left to right; the time is recorded in seconds and in one-fifth of seconds. In all the breathing records the amount of inhalation is registered by the downward movement of the stylus, that of exhalation is indicated by the upward movement; the duration of both inhalation and exhalation is measured by the extent of the movement in the horizontal direction. By comparing all points of each curve that lie on a line drawn perpendicular to the line of movement of the kymograph drum the temporal relations of the different phases of the processes recorded can be determined.

T is placed opposite the time line.

Th is placed opposite the thoracic breathing curve.

Ab is placed opposite the abdominal breathing curve.

[24] Taken from "An Experimental Study of Stuttering," by John Madison Fletcher, *Amer. J. Psychol.*, 1914, XXV.

V is placed opposite the voice record of Rousselot microphone.

P is placed opposite the plethysmogram.

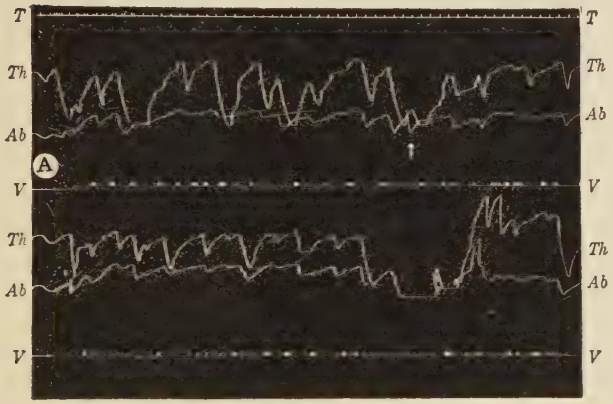

PLATE A.

Subject Albert Neal. Reading Card 2—Rousselot registering voice faithfully.

PLATE A gives two records taken at different intervals and showing the thoracic curve above and the abdominal curve below in each case. Below the abdominal curve of each record, the registration of the microphone is shown by the up and down movements of the stylus. The abnormality of this record is shown in the arhythmic character of the breathing curve and also in the scantiness of the voice record.

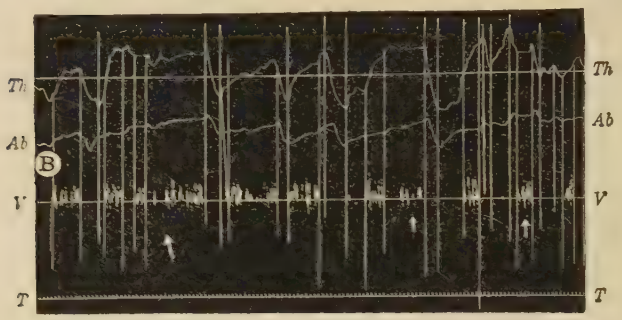

PLATE B.

Fred Irwin. Recitation E. Reciting day's proceedings at High School.

PLATE B is reproduced for the purpose of comparing it with record C following to illustrate the possibility of both normal and abnormal speaking in the same subject. The perpendicular lines are drawn to show the method of comparing the several registrations. In this record the subject is stuttering, while in record C he is speaking normally. Note the tendency to attempt to speak when the lungs are empty, and even during the exhalation period.

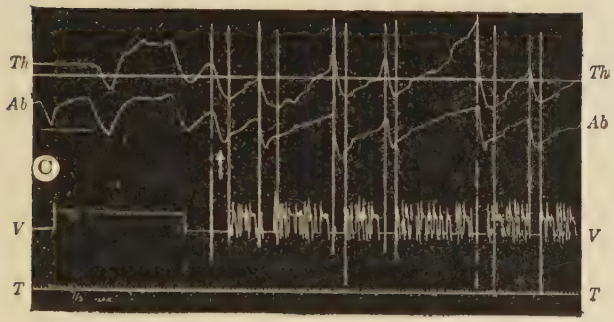

PLATE C.

Fred Irwin. Recitation E. Reading without stuttering.

PLATE C is a record from the same subject as the one from whom Plate B was secured, only in this record his speech processes were recorded while he was talking normally. Note the rhythmic succession of inhalation by exhalation, also the complete utilization of the exhalation period in voice production, as indicated by the microphone record (*V*).

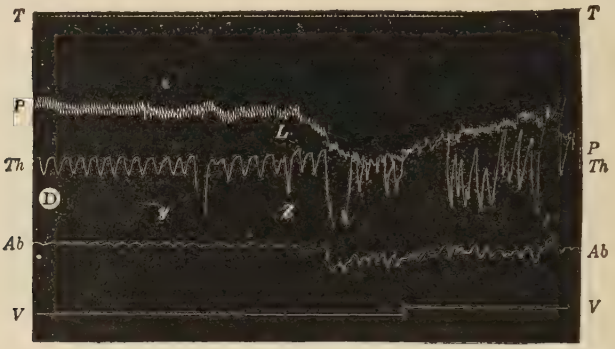

PLATE D.

"Subject A. N. *x-y* passive. At *y* I told him I should soon ask him to read a card. At *z* I handed him the card. At *L* I stopped kymograph, went to him, and found face flushed. He said he would like to hit somebody with his free (left) hand. Signs of tears."

PLATE D gives a plethysmogram showing simultaneously the volumetric changes and the heart-rate, also the thoracic and the abdominal breathing curves. Sudden breathing and vaso-motor changes are seen to mark the period of the beginning of speech.

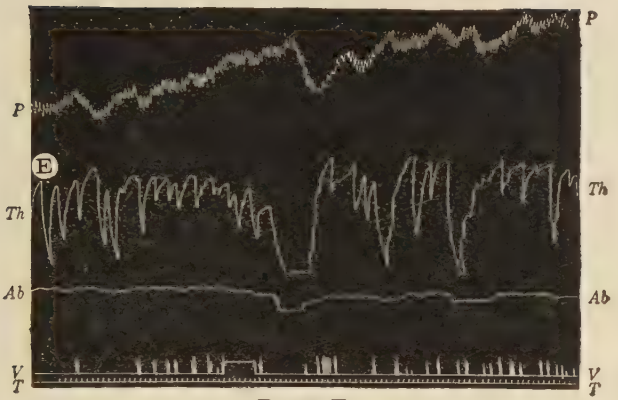

PLATE E.

A. N. stuttering while reading Card A.

PLATE E gives the same as record D with the addition of a voice record. In addition to the marked irregularities of the breathing curve the steady rise of the plethysmographic curve is to be noted. The full extent of this rise is greater than could be shown in the length of the reproduction here given.

CHAPTER VII

STUTTERING AS A FORM OF SOCIAL MALADJUSTMENT

Speech Is a Social Function. Psychology recognizes the fact that speech is a social function. Since 1919 the Psychological Index has listed defects and disorders of speech as a sub-heading under the caption of "Social Functions of the Individual." Moreover, speech, to use the terminology of the Gestalt psychologists, is a response to a relational form of situation. The relations, to be sure, are not those of sense qualities, of time, space, or physical causation, but of personalities or groups of personalities. To conceive of speech aside from the consciousness of these relations, i.e., as mere sound utterance, in the production of which the auditor has no more to do than a recording device on a dictaphone has to do with the sound waves which it records is a misconception of the psychology of speech which, probably more than any other one thing, has been responsible for our inability at this late date to cope with the

problem of stuttering. Unlike mere sound waves that produce their tracings on the disk of a recording instrument, speech is *delicately responsive to the social attitudes and relations existing between the producer and the receiver, between the speaker and the auditor.* In no way can this be more strikingly demonstrated than in the case of the stutterer, in whose case, as we shall point out in this chapter, the most subtle differences in social attitudes will make the difference between ability and inability to talk.

All communication demands a social adjustment, either intellectual or emotional, or else both at once. Adjustments of the universe of discourse, of contrarieties of concepts are essential to mutuality of thinking and to conversation. In equal if not greater degree are volitional adjustments essential to social relationships of all sorts.

Stuttering Represents a Morbidity of These Adjustment Processes. The stutterer's adjustment, therefore, is not unique in being of a social character. It is unique only in that it involves an exaggeration, or morbidity of certain factors of social adjustment, especially those of feeling attitudes.

Many previous writers on this subject have noted the really inescapable fact that social situations affect the speech of stutterers. Scripture was one of the earliest writers to make this ob-

servation. He has in more recent years repeated the same observation.[1] But, as we have previously pointed out, he seems to find it necessary to employ the Freudian mechanism of the unconscious mind in order to make the act of stuttering intelligible, stuttering being a scheme wrought out in star-chamber fashion by the unconscious mind, whereby the stutterer may be enabled "to avoid occasions where he will suffer on account of timidity." To this explanation we have in previous pages offered detailed objections, the main objection being that it introduces an explanatory hypothesis which is not only superfluous, but which of itself requires considerable explanation. The reactions of stuttering are explicable without it, in terms of facts already familiar to general psychology.

Gray says[2] that "speech, then, is a form of adjustment to social life. It is influenced not only by the habits which we form through education, but also by those processes which take place below the threshold of consciousness; whatever affects either of these factors, therefore, is bound to affect speech. The emotional conflicts which center about the fundamental cravings and the social restrictions result in an upset of the normal reactions, and a speech defect follows. The great

[1] "The Lancet," 1923.

[2] "Behavioristic Aspects of Speech Defects," *Jour. Speech Educ.*, X, 1924.

problem is how to handle those conflicts so as to reduce the friction which prevents the proper expression, indeed, the proper development, of the personality."

As contrasted with most of the previous writers on this subject, Gray proposes a theory of treatment for stuttering which is at least consistent with his conception of the nature of the disorder. The solution of the difficulty cannot be found, he thinks, either by ignoring or repressing the fundamental cravings of human nature, such as the desire for affection, for action and the like. "The real solution," says he, "for the speech defective consists in putting these cravings to use, in sublimating them to the advancement and good of the social order."

The author feels that, in spite of previous observations, which in many instances seem to be merely incidental, sufficient recognition of the social character of stuttering has not been given. Least of all, seemingly, has this observation found its way effectively into the formulation of therapeutic practices. In pursuance of this conviction, stress will be laid upon this point of view in this chapter. Clinical facts will be offered which, in the estimate of the author, amount to a demonstration of the correctness of this theory. In addition, the general therapeutic implications of it will be pointed out.

The Physiological Symptoms of Stuttering Have Been Misleading. As to the question of the ultimate nature of stuttering, one may say that it has been extremely unfortunate that the symptoms in the form of physiological asynergies are so conspicuous and amount to such a serious social interference that attention has been centered upon them rather than upon the underlying causes. If such a thing were conceivably possible it would be well in attempting to diagnose stuttering to cease to think of it as "defective speech" at all, for this is by no means the essence of the malady, and to look into its inner background of causation. Reed, as we have previously noted, says that stuttering is not to be designated a "defect of speech." The author believes that it should be diagnosed and described, as well as treated as a *morbidity of social consciousness, a hypersensitivity of social attitude, a pathological social response.* The morbid elements in this social response include, typically, fear, anxiety, the feeling of inferiority, and kindred attitudes arising out of a state of mind engendered by the realization of the necessity to meet, through speech, certain social requirements. The memory of previous failures to meet similar requirements serves to "set off" these reactions. Both the social situation and the emotional response to it, we must point out, are *specific,* not general. *Not just any*

kind of situation, and not any and every kind of emotional response will constitute an adequate excitant of stuttering. The fear which underlies stuttering is in this respect quite unlike the nameless terror, the vague, unfocused, free-floating fear which Freud describes as neurotic fear, and which, as he holds, arises from a frustrated libido. It is likewise different from what Stekel designates "anxiety neuroses."[3]

Speech the Medium Par Excellence of Communication. That emotional abnormalities of a specific sort should cluster around speech is not to be wondered at. Society is based upon communication. Mere juxtaposition may make a forest, as Tarde puts it, but only mental intercommunication can make a society. Language is the chief medium of communication. Spoken language is the most common and is socially the most important form of communication. If it be true that we are "nine-tenths another and one-tenth me," we owe that fact to communication, and predominantly to spoken language. We express our opinions and our feelings to others through this medium, and by speech others gain experiences of our attitudes, feelings and opinions. Written language can serve as a medium of both thoughts and feelings, but it differs psychologically from spoken language in that its

[3] "Nervöse Angszustände und ihre Behandlung."

social objectives are not felt as present in the making. Written language, being temporally and spatially out of touch with its social objectives, is less affected by the social influences of these objectives.

Emotional Adjustments Are Between Personalities. It is a striking fact that it is to personalities, rather than to things that we are compelled to make our mental and emotional adjustments as the price of mental health. It is true that internal ego-conflicts are the ones that are most likely to be pathogenic, and to lead to mental disintegration. Yet the *socially conditioned inhibitions* that come into conflict with the primordial drives of the ego are the ones that are most likely to be found in the background of our internal conflicts. The ego itself is genetically a social product.

Even Primitive Adjustments Were Personal Adjustments. What elements of our own emotional life we owe to that of primitive man cannot of course be estimated. But assuming that our emotions are of ancient origin and that they are the resultants of selective adjustments to the environing conditions of our primitive forebears, we still must recognize their social character, in spite of the simplicity which we understand must have characterized primitive social relations. It was by no means altogether to the world of ex-

ternal things that primitive beings had to make their adjustments. And moreover, with an animistic view of the external world, with a world peopled with living beings and ruled by spirits that were prompted by motives similar to those that provoked human behavior, savage man struggled to make *social adjustments* where we endeavor to discover natural laws and control physical forces. The first awe-inspiring object to the primitive mind was an overtowering personality. Hence the big-man conception of deities. Only anthropomorphized deities have been able to impress mankind. Deities conceived as Absolute Reason, the Unknowable and the like, have had their place in philosophical systems, but they have never provoked either fear or worship. This is true as applied to primitive life, and yet today the poet, if he would himself be moved and if he would move mankind, must view nature animistically, that is, socially. So that, whether we think of man in contact with man or in contact with nature, his most basic emotional reactions are of a social character. And in so far as these characteristics have become hereditary they constitute the biological heritage of mankind of today. Hence beings like ourselves excite our profoundest emotions. Many hold that even the appreciation of art is conditioned upon our being able to identify ourselves through empathy or *Einfüh-*

lung with the products of art. This act of identification is like that of getting *en rapport* with other personalities. Racially and individually, man learns personalities first and things afterwards.

Child's First Conflicts Are Social. The first external conflicts which a child meets in the process of development are likely to be of a social character. His parents interfere with his attempts to explore his physical environment. He cannot be trusted to roam at will or act at will even within the confines of the nursery. His curiosity is so far in advance of his knowledge and experience that serious injury would result from allowing him to learn first to make his adjustments to things. Hence it is to his social environment that he has to learn to make his earliest mental adjustments. If his egoistic tendencies are strong, this brings him into conflict with social requirements of the home situation. After his domestic relations have been established, he will have the same sort of battle to fight with social conventions of an ever-widening range as he moves farther and farther into social relationships. If he does not learn to adjust himself to social restraints, but continues to oppose them, he may become an anti-social citizen, but not necessarily a disintegrated personality. The outcome of the conflict will depend upon the kind of restraints imposed and upon his own mental and

nervous make-up. On the other hand, instead of opposing social restraints and conventions, he may accept their authority with equanimity, and remain a perfectly integrated personality, with the inner forces of his being in harmony with the outer forces of social control. If, however, he yields through social pressure to ideas and conventions that are in essential conflict with his own conceptions and with the basic drives of his being, the stage will be set, internally this time, for a conflict, and in all probability a tragedy. Paton [4] illustrates this condition when he says: "When we accept dogmatic religious doctrines, we strike a serious blow at the unification of the personality." And again, "The relinquishment of rational control is usually equal to taking a long step in the direction of becoming an unbalanced person."

As illustrative of the conflicting forces that play upon the life of a child and complicate his problems of adjustment, and at the same time as indicative of how the world of inanimate things is to the child the same as that of animate things, Koffka [5] has this to say:

> But gradually the child perfects his temporal patterns, and it becomes a characteristic of these that many of them can exist side by side without influenc-

[4] "Signs of Sanity," p. 221.
[5] "The Growth of the Mind," pp. 344–345.

ing each other very strongly. I believe that the two systems first to arise have to do, one with undertakings, processes and things which relate somehow to adults; while alongside of these a second system is developed which is independent of adults. Thus to a child the world of adults separates itself slowly, and at first indistinctly and obscurely, from his own child-world. The world of the adult makes itself gradually felt through the unpleasant consequences of certain acts of behavior. In the adult's world the child is not free, but instead meets with compulsion and opposition which are lacking in his own world. So long as the connection between the child's world and the adult's world is still a loose one, motives for drawing new distinctions, such as that between the quick and the dead, are doubtless found to be stronger in the adult's world than they are in the child's world where no such requirement is made. If a child finds himself in his own world, these categorical analyses are largely lacking from both his external and internal behavior; therefore he acts the same towards both animate and inanimate things.

Mental Diseases Rooted Often in Social Conflict. To sit in staff meetings of hospitals for mental diseases and watch the procession of disordered minds pass by for diagnosis impresses one with the serious possibilities of personality adjustment, of minds going to pieces in their attempts to adjust themselves to other minds. Delusions of reference, ideas of persecution, delusions of infidelity, ideas of grandeur are but so many terms descriptive of social morbidities. Usually if inanimate objects or physical forces enter into

the thoughts of the insane at all they are generally considered to be manifestations of social meanings of some sort, i.e., as signs, or signals with cryptic significance.

Dangerous Language Inhibitions Are Often Set Up in Children. Although there are, apparently, no definite, fixed or focalized traumata in the background of stuttering, such as those to which Freudian psychology is accustomed to refer in accounting for functional disorders of all sorts, there are many almost unavoidable language inhibitions, which endanger even the most carefully brought-up child. It is inevitable that such inhibitions present the possibility of inducing emotionally toned response tendencies. These inhibitions do not necessarily have their genesis in any single traumatic experience, nor in any specific type of experience, according to the Freudian formula. They manifest a certain degree of permanence, but their permanence is not due, as certain psychoanalysts would have us suppose, to their common root. It is obvious that any experience which has set up a conditioned emotional response will, if constantly repeated, tend to become strengthened. It is this accumulation of associations, rather than any *form of traumatic origin*, that keeps the stutterer's speech inhibitions going. And it may be remarked, in passing, that it is by establishing counteracting emotional asso-

ciations and motor tendencies rather than by digging into the seat of a supposed focalized mental trauma, that they are to be removed.

Stuttering Is One Variety in a Large Group of Social Morbidities. That stuttering is one among that big group, noted above, of social maladjustments, and is to be thought of as being fundamentally a species of social pathology rather than as a mere disturbance in the speech functions, is being recognized by an increasing number of students of the problem, and is borne out by a considerable array of observations. The author has pointed out[6] certain facts on which this conclusion is based, and has found these facts in increasing numbers as his clinical experience has been extended.

If, for example, a stutterer be removed from all auditors and called upon to speak or read to himself he can usually—always, so far as the author's experience has gone—speak without any difficulty whatsoever. One stutterer reported that the mere suspicion that someone might be listening was sufficient to disturb his speech. The realization of the presence of auditors brings about a feeling of responsibility for speaking which weighs heavily upon the stutterer. When someone asks him a question, for instance, he feels, with a keenness amounting to morbidity, the necessity to

[6] *Amer. Jour. Psychol.*, XXV, 240–242.

speak and at the same time the fear of being made to do so. He realizes that unpleasant consequences will follow if he does not succeed in his attempts at speaking. The persons to whom he has attempted to speak will, he is aware, become amused, embarrassed, or possibly angry. If he were deaf or dumb the situation could be made intelligible to the auditors, but the stutterer cannot take refuge in such excuses as these. If he begins to speak and halts, unable to continue, the responsibility to proceed and the heightened feeling of his inability to do so overwhelm him. The look of surprise, amusement or sympathy in the face of his auditor adds to his distress and he is caught in the fatal vicious circle. The realization of the social demand, the idea that something is expected of him by way of reaction, reply or communication in consecutive speech, the compulsion arising from a question put directly to him, or from a social or business situation requiring speech in which he finds himself, constitute the social excitants of his morbid reactions.

The Stutterer Is Affected by a Variety of Social Relationships. In the main there are three aspects of social situations as felt by the stutterer that determine his ability to talk. In the first place may be mentioned the social relation which he realizes to exist between his auditor and himself. Secondly, his ability to speak is affected

by the momentary attitude of his auditor or auditors toward him. And thirdly, it is affected by his own momentary attitude toward his auditor or auditors.

(1) General Social Status. As to the felt social relations between the stutterer and his auditors, it has been frequently pointed out that to the socially superior and especially to those who are in authority over him the stutterer has his greatest difficulty in speaking. It is probably true that all stutterers suffer from an inferiority complex. It is the habit of the stutterer on coming into contact with another person to think first of how that person is going to regard him rather than to have in mind how he is going to regard the other person. This is symptomatic of a sort of feeling of inferiority or at least a fear of it. The author can not find it possible to subscribe to the Adlerian formula that the stutterer's difficulty is rooted in general realization of inferiority. Rather is his feeling of inferiority like his emotional reaction tendencies in that it is (1) specific, not general, and (2) in that it has been set up by a series of emotional experiences connected with the act of speaking. It does not seem to be inherent in his make-up. Many stutterers have superior abilities and talents in other lines than speaking, and are not unaware of it. One of the author's clinic cases said that often after stutter-

ing before other people he had a desire to get into a fight, to throw somebody out of the window, so as to demonstrate his athletic prowess and thus to compensate himself for the humiliation he felt for having made such a failure of talking. He felt strongly that his faltering speech had cruelly misrepresented him, and yearned for a chance to prove it.

With Stutterers as with Others the Feeling of Inferiority Hinders Speech. Stutterers, it is needless to say, may have the same general mental or physical inferiority which other persons exhibit. And where there is an actual inferiority, and especially if the subject is sufficiently intelligent to realize his inferiority, there is always an increased liability to stutter. Wallin found in his study of the St. Louis schools, as we have pointed out elsewhere, that speech defects were ten times as numerous among the children in the special classes as among normal children. This situation is partly accounted for, doubtless, by the fact that many stuttering children are so handicapped in school work that even those who are of normal intelligence will drift into special classes rather than continue the struggle in their regular classes against heavy and painful odds. On the other hand, it is true that inferiority of intelligence may itself, where realized, be a cause of at least an increased tendency to stutter.

The normal excitant of this specific sense of inferiority is a situation in which the stutterer realizes that the responsibility for speaking cannot be escaped. For this reason to most stutterers telephoning is very difficult. To certain individuals it is possible in telephoning to get a sense of seclusion, and thus to escape the hardships that result from social contacts. One clinic case reported that a wide counter in a store had the same effect upon him that a telephone had, in that his voice was his sole dependence to make himself understood. As a rule this disturbing sense of dependence upon talking as the sole means of communication is rendered more acute when there is no possibility of giving substitute words in the event that the word desired should prove difficult to enunciate. For this reason stutterers have difficulty in asking for street-car transfers, railroad tickets at windows, theater tickets and the like. Stutterers have been known to write the name of their destination on a card and take it along with them, so that if they had the feeling that they would not be able to talk they could present the card and pass off as dumb. Often the mere suggestion that they can get around talking by doing something like this is of itself sufficient to relieve the feeling of necessity to speak and the fear of their inability, and will make it possible for them to

say what they wish to say. The author's subjects with whom he tried out reading in unison and always found that they did not stutter under these conditions, reported, as their explanation of their relief from stuttering that in reading with someone they did not have the feeling that the sole responsibility was resting upon them, and that if they "got stuck" the other person would keep going. In a number of cases tests were made of the physiological symptoms during the time in which they were trying to imagine themselves in situations in which they would be most likely to stutter. The author's results were negative in these tests. He ascribes the absence of the usual physiological symptoms of stuttering in these tests to the lack of any sense of real responsibility for speaking. That singing is possible to the stutterer seems to be due to the fact that in singing one is simply vocalizing, and hence does not feel any responsibility for conveying a message to his auditors through speech. The physiological processes of singing being identical with those of talking, we are compelled to seek other than physiological explanations for the stutterer's ability to do the one but not the other. The social relations and attitudes involved in the two acts are markedly different and, to those who have taken note of the radical changes in the stutterer's speech by slight changes in attitudes and social

situations, seem quite sufficient to account for the facts. Consciousness of social demands, or *Aufgabe,* is a determining factor in affecting the stutterer's ability to speak.

Coriat's Theory of Concealment from Relatives. Coriat's theory introduces another and wholly different idea of social morbidity. This theory is one phase of the Freudian explanation of stuttering, and was stated and discussed in a previous connection. It is only necessary here to refer to the social aspects of his theory. He says[7] that "the external stimuli act like dream instigators, for instance, the dread of speaking to relatives or to intimate friends may be based upon the fear that the unconscious wishes may be discovered and this stimulates the unconscious anxiety, whereas with strangers, speech is free, because the dread of discovery is absent."

The author feels compelled to question the facts which Coriat here seems rather easily to take for granted. In the first place it has not been found that stutterers have more difficulty in talking to close relatives and friends than to others, except in those instances in which there has been created a certain attitude of social restraint. This is particularly likely to arise where there is a nervous parent, who is anxious over the child's handicap, or a stern parent or relative by whom the child

[7] *Jour. Abn. Psychol.,* 1909, p. 421.

is overawed. Where these conditions do not exist the child may be found to talk better in the presence of those who know him well than he can to strangers. One very serious case of the author reported that he could talk much better to his mother than he could to anyone else. Furthermore, Coriat's statement that "with strangers, speech is free, because the dread of discovery is absent," is, so far as the author's experience goes, even further from the facts. If anything approximating this were true stuttering could be easily remedied by the simple expedient of staying away from home.

School Room the Most Difficult Situation for a Stuttering Child. The social relations of inferiority, of subjection to authority, of scrutiny, and criticism, which characterize the situation of a child in school, are precisely the ones which have been found to be the most potent excitants of the emotional and motor reactions of stuttering. But for this long-drawn-out and daily recurring irritant, the percentage of spontaneous recoveries from this malady would unquestionably be much greater. The author has had many clinical cases who illustrate most convincingly the effect of a sudden shift of social situations and the consequent change of social attitudes, followed by a striking renewal of ability to talk normally. The most recent cases have been college students who

alternate teaching with going to summer school. One of these is a young man who acts as principal of a public school during the school year, and attends the summer session during the vacation quarter. As principal he reports that his speech disorder gives him no trouble at all. Once he changes his rôle and becomes a student his trouble begins anew. Another case is that of a woman who is a teacher of the third grade, who follows the same plan of teaching during the winter session and attending summer school during the vacation. She experiences the same change in her condition. She has no trouble at all in her class-room as a teacher, but as a student her difficulty increases to such an extent that she finds it almost impossible to continue her studies. The latter case suffered such an embarrassing and painful experience at the hands of a particularly inconsiderate English teacher recently that she was not only incapacitated for reciting to this teacher, but was driven almost to despair of doing anything further in the way of college work.

A third case presented so many illustrations of the principles here discussed that she was asked to write out as far as possible a report of her experiences. This case, Miss S., is a primary and kindergarten teacher, and a candidate for the B.S. degree in college. Of herself she has this to say:

By nature I have a tendency to be reticent and to dislike to be a part of a big group of people. My (childhood) environment gave me an opportunity to cultivate this weakness instead of helping me to overcome it. However, not until I landed here (in college) did I fully realize how unfit socially I was and am. I realize I am helpless to express my exact feelings when I am in the presence of other personalities whom I do not know. Just here let me say that no one person affects me in this peculiar manner, but several strangers never fail to "knock me out"—of words, I may say.

Physiologically, I am not sure I could name any symptom except an awful tightness in my throat and a hot flush over my face.[8] I can imagine I have swallowed a water bucket and someone is making an effort to pull it out of my throat where it is "hung up." The bigger and stranger the group, the worse that feeling is; and often I can't get a word out of my mouth by any amount of effort on my part, so tightly do they hang in my throat.[9]

Mentally, for the time being I seem to go blank when addressed. However hard I try to forget myself in a social situation, I have so far failed to do so. The social situation which affects me most is one in which I am supposed to do or say something. Whenever I feel that something is expected of me the tension gets so great that I really expect a snap of my vocal cords. Children do not affect me in this way at all. I can be myself thoroughly when I am in their presence. When I come to know any individual well this attitude of mind gradually fades away and

[8] Compare Robbins' insistence on vaso-constriction as against the author's finding of vaso-dilation of the cerebral centers, p. 150.

[9] With this statement it is also interesting to compare Coriat's claim, previously cited (p. 150), that "with strangers speech is free."

> I grow to be a more normal human being in my responses. I have met a few individuals who so completely reinforced me by their very manner that I am able to regain my equilibrium more quickly with them than I can with a snappish, over business-like, intolerant person. Yet in the presence of the gentlest my manner is always somewhat artificial at first. Peculiar to say, I can definitely feel it, yet am helpless to change it. As a result people in general do not care for me and I run from them, propelled by something inside of me, I cannot say what.[10]

Why the Stutterer Can Often Speak in Public. The curious fact that severe stutterers like Canon Kingsley have been known to be eloquent speakers in the pulpit or on the platform has often been noticed, but there has been a striking lack of satisfactory attempts to explain it. Have we not here the same reversal of social relationship as that noted in the case of Miss S. above? Does

[10] The above personal account was given on the request for a general account of personal experience with stuttering, with special reference to the situations in which stuttering was most likely to take place. The author feels certain that the young lady had never heard of Coriat's theory concerning sexual concealment. Since giving the above account of herself she has graduated and is teaching in the primary grades of a city school system. She reports that her fellow teachers and intimate friends have not so far discovered that she has been a victim of stuttering. She is now in a situation which reverses the social relations of the classroom in which she played the rôle of student. Every day of successful work in this new situation is curative, and in the end, if she continues in the present manner, she is likely to recover completely. This may be listed as a type of vocational therapy, the essentials of which constitute the principles of the treatment of stuttering advocated in this book.

not the orator's attitude of leadership, of superiority, of control over his audience correspond to the attitude which the teacher has toward her class?

Scripture some years ago tried to diagnose stuttering as "superenergetic phonation," and what he now calls lisping as "subenergetic phonation."[11] It is true of course that a stutterer expends, or wastes, more nervous energy than does a lisper, but that it is erroneous to classify lisping and stuttering on the basis of the nervous energy involved is amply shown by the fact that in oratory, which is, surely, superenergetic speaking, stuttering is likely to disappear.

Stutterer's Speech with Strangers Is Affected by Social Status. Many stutterers have difficulty in giving their names to strangers on introduction. This difficulty is materially altered by the relationship which the stutterer sustains to the person to whom he is introducing himself. It is much easier, for example, for him to talk if he is introducing himself to an inferior, to some one upon whom he is proposing to confer a favor, or to some one over whom he may have some control, than it is when introducing himself to superiors, or to those from whom he may be asking a favor or to those who may have some authority over him. The subtle character of these social atti-

[11] *Med. Record,* LXXIII, 1908.

tudes, and their almost unbelievable effect on the stutterer's speech may be illustrated by a case known to the author. So long as this person had to introduce himself as Mr. Blank, he generally had trouble. Once he became *Dr.* Blank, and could therefore introduce himself as such if he chose, it was no longer difficult for him to introduce himself as *Mr.* Blank. Here we have an interesting mixture of elements of causation, namely, the realization of the possibility of a substitute, and also the realization of the change in social rank, each of which has marked effect upon the stutterer's ability to talk.

2. The Momentary Attitude of the Auditor Affects the Stutterer. Regarding the effect of the realization of the immediate, momentary attitude of the auditor toward the speaker it is to be said that this has reference not to differences in permanent social status as recognized by the stutterer, but refers rather to a temporary and sometimes accidental mood of the auditor as intuited by the speaker. The stutterer is characterized by a hypersensitivity of social irritability, as we see in the case of Miss S. above recorded. One of the author's cases said that he always talked better when his auditor seemed indifferent to what he was saying. Any show of scrutiny, especially if it be critical in spirit, is likely to upset the stutterer in his attempts to speak.

3. The Momentary Attitude of the Stutterer Toward His Auditors. And finally, it is noted that the momentary attitude of the stutterer himself toward his auditor will vitally affect his ability to talk. Bonnet [12] mentions a stutterer who said he possessed one good thing which he could use only when he had no need of it, namely, speech. The explanation of this curious statement is not far to seek. The feeling of indifference, nonchalance or good humor will have telling effects upon the stutterer's ability to speak. One former stutterer reported to the author that he overcame his trouble in large degree by the practice of talking in a humorous way when he saw danger ahead, sometimes affecting to laugh at difficult places in his speech. Stutterers as a rule can talk nonsense without difficulty. Facetiousness and social sensitiveness are obviously mental incompatibles; it is the latter and not the former that is associated with stuttering. One of the worst clinic cases the writer has ever had was a young man who sometimes worked during the summer months as the "spieler" for a show of some sort at a large city park. He had a set speech which he delivered without difficulty by the hour in front of his show. When he tried to converse he could scarcely talk at all. When asked

[12] "Étude critique sur la parenté morbide du bégaiement avec les tics et les crampes fonctionelles," p. 69.

to demonstrate how he made his speech at the show, he could do so at any time without stuttering. This was another case of a subtle change of social relationship and of mental attitude, induced, as in the case of the teachers mentioned above, by the realization of a change of rôle.

An even subtler shift of mental attitude is illustrated by the case of a young boy in the clinic who was trying in vain to say a certain word. He was stopped and was asked what word it was that he was trying so hard to say. He answered promptly that it was the number "nine." In the first instance he was conscious of an auditor waiting until he could say the word. The question put to him suddenly turned his mind in a new direction, and thus released the previous associations by which his speech processes were being blocked. Stutterers can often, in this way, repeat things without stuttering, over which they have had great difficulty in the first trial.

Indifference and Relaxation, and also Excitement Relieve Stuttering. It has been noted that the indifference to social scrutiny found in the state of alcoholic intoxication will relieve stuttering. But while stuttering is relieved by decrease of mental tension, indifference, facetiousness, and other forms of mental relaxation, it is also sometimes relieved by excitement. Many stutterers

who talk with difficulty can swear with ease. Here we have not only a change from the accustomed social attitude of fear, mental subserviency, helplessness, and the usual mental morbidities antecedent to stuttering, but we have also the arousal of somewhat exceptional feelings, attitudes and associations. The very act of swearing is an assertion of the inferiority of an opposing personality, or else an attempt to make him so by mental fiat. At the same time it is an act of self-assertion and an assumption of a kind of superiority of the swearer. The mind as a whole is in this instance cast in a new form, is playing a new personality rôle, while the apperceptive masses so tightly connected with stuttering are momentarily broken up.

Change of Rôle in Imitation Relieves Stuttering. It is a very interesting fact psychologically and at the same time a very important fact therapeutically that a stuttering child can generally mock another person, dramatize, or play a rôle without any difficulty of speech. To this fact we shall revert in another connection as bearing upon their education and treatment.

Associations Causing Stuttering Are Relational. Köhler found[13] that in teaching an animal to react to one of two shades of gray, instead of establishing a simple association bond with this

[13] "The Growth of the Mind," by Koffka, p. 138.

shade of gray in the animal's mind, he was establishing a tendency to react to the darker or lighter of the two shades, as the case may be. When, for instance, the animal was taught to react positively to, say, *B*, the darker of the two grays, on presenting a gray still darker than *B*, he reacted positively to this and negatively to *B*, that is, he was reacting to a relation instead of to a simple stimulus.

The simple "mechanism" of conditioned reflexes, as exploited by extreme behaviorists, is thus shown to fail as an explanation even of reactions of lower animals. For even stronger reasons, as we have seen from the foregoing account is it a failure as an explanation of human speech, and so also are those psychological theories, that do not take account of (1) the complex form of consciousness out of which speech arises, and (2) the complex social objective toward which it is directed. In the case of normal speakers these subtle factors arising from social relationships and attitudes escape notice, and hence their significance to the stutterer has never been duly emphasized. In his case they not only become apparent, but they constitute the determining factors in his speech. In this respect, as in so many others, the stutterer becomes a most important subject for psychological study. He exhibits not only a most interesting type of speech pathology,

but at the same time he affords an interesting variety in the Pandora box of social ills.

Physical Diseases Conceived as Organic Maladjustments. There seems to be a growing tendency in medicine to get away from the conception of disease as so much abnormally affected tissues of certain areas of the body, and to think of it as the manifestation of a living organism adjusting itself to certain unfavorable conditions. We are asked to think of sick *persons,* rather to think exclusively of sick bodies, or ailing body parts. Meyer[14] says, "Neurology has led us too much out of a functional appreciation of development. It reasons largely with stationary and progressive focal conditions and their occasional repair, rather than with balancing mechanisms, such as we must work with in psycho-pathology." This movement in medicine antedates the Gestalt movement in psychology so far as this country is concerned, but as the author views it, it is fundamentally the same in conception.

Methods of Treatment Are Inconsistent with Correct Diagnosis. Coming now to the second main topic of this chapter, namely, the therapeutic implications of the conceptions of stuttering as a social phenomenon, a mental maladjustment, a hypersensitivity and morbidity of social consciousness, we must raise the question as to

[14] *Nerv. and Men. Dis. Mon.,* no. 9, 1912, p. 161.

whether the methods of treatment now in vogue are in harmony with this conception. To give a complete survey of speech correction methods now in use would transcend the purposes of the present book. It has only been possible to secure from various sources accounts of *typical programs* of treatment. Recognition has been given wherever it has been possible to find any method that seemed to present anything different from the types of program already in use. That the methods of treatment now in common use are not consistent with the conception of stuttering as herein proposed seems to be an unavoidable conclusion.

The New York City Program Appears Representative. According to McDonald[15] in New York City "unassigned teachers and cadets are employed to give special instruction to these defectives for the purpose of helping them to gain control of their speech organs. To each special teacher there is allotted a given number of schools so grouped that about forty pupils come under her charge. The teacher visits each of her schools two or three times a week, according to the number and seriousness of the cases. Special instruction is given in a separate room, the aim being to meet the individual pupil's needs. The exercises

[15] "Adjustment of School Organization to Various Population Groups."

include practice in breath control, speech gymnastics, relaxation, slow articulation, and rhythmic utterance. Through the coöperation of the special teacher with the school physician, the school nurse, and the room teacher a careful record is kept of the more serious cases, and each special teacher makes a monthly report to the city superintendent.'' The essentials of this New York Plan seem to have been introduced into use in the Chicago Public Schools in 1910 by Superintendent Young. The plan seems, moreover, to correspond in its essential features with that which is still in practice. In answer to a detailed inquiry from the author, Miss Agnes V. Birmingham of the Department of Speech Correction of the New York City Public Schools says:

> (1) There is (1926) in the New York City schools a department of Speech Improvement where specially trained teachers supervise the correction of all speech defects in the districts to which they are assigned. The special teacher examines the speech of every child each September and after these children are classified according to age and defect, they are taken out in small groups (not more than ten when possible) and given special drills and exercises in half hour periods. The number of periods varies according to the number of cases in a school and the number of schools the special teacher has in charge. It is desirable to see these children at least twice a week, more often if possible.
>
> (2) These handicapped children continue in their regular classes as usual. The special teacher con-

sults with the class teacher regarding individual cases, advising the course to pursue regarding oral recitations.

(3) No child is ever entirely excused from classroom recitations. His work may be reduced to a minimum but he is never made to feel he is not a part of the class, which must necessarily happen if he is permitted to write his answers or is excused from oral work. The keynote of the work of correction is to make the child feel that the ability to correct the defect lies within himself. No special educational accommodations are provided for these children except in the half-hour periods when they are with the speech teacher.

The ideal method would be to provide special accommodations for these children for a time, when the work of correction could be accomplished in less time and under more favorable conditions, but at present, at least, this is impossible in this city.

(4) We have no record where the last-named method is used.

Miss Alice Chapin, Supervisor of the Department of Speech Correction, in answer to a request from the author, outlined a similar method which is in vogue in the Los Angeles City Schools.

The Madison, Wisconsin, Plan. Miss Camp discusses two therapeutic programs[16] that have been adopted in Wisconsin. One method involved caring for speech-defective children in the schools for the deaf. This method, after being tried for a short time, was abandoned. It was found to be more economical and more satisfactory in results,

[16] *Jour. Speech Education,* IX, 1923, 280–283.

she says, to employ a speech specialist to look after these cases. She recognizes the social character of stuttering, but thinks the speech specialist can adjust the stuttering child to his social environment both in the school and in the home. She said that by this latter plan the city of Madison cared for 212 cases in 1922–1923 at a cost of $2,200. It is to be assumed that only one specialist was employed for that sum. One finds it difficult to imagine a problem of adjustment so simple as to admit of being carried out at such a wholesale rate. It is also difficult to imagine the amount of time that could be given to each of 212 stutterers who are scattered in different parts of a large city. In the light of the verdict of almost entire failure upon the part of such authorities as Brill, Reed, and Scripture, who worked under more favorable conditions than these, one cannot but wonder just how much of adjustment was brought about in this very large number of cases. Even careful teachers may be deceived by the notoriously optimistic reports of stutterers as to how much they have improved. Whatever one may be able to accomplish in a short time with other less serious forms of speech defect, stuttering is, by those who have studied it most carefully, regarded as a most stubborn and perplexing malady. To fancy that it is remediable at the hands of a superficially trained person, who may

go around among the schools once or twice a week, take children out of their classes, give them a few speech lessons, with perhaps a little psychoanalytic adjustment advice, and then return them to their class rooms to make their way as best they can, is, in the opinion of the author, to underestimate the seriousness of the malady of stuttering and the magnitude of the problem of meeting it.

The Social Advantages of the Madison Plan Questioned. Miss Camp argues that in addition to the economy of the Madison plan there is an advantage in the fact that stuttering children are by this method kept among normal children. In support of this idea she says: "The strongest argument in favor of these children in class with normal children is that the very nature of their illness itself suggests this treatment. Educators and psychologists agree that a large percentage of speech disorders are functional, that is, mental disorders."

The logic of this contention would seem to be that if a mental abnormality is functional the environment must be left intact and the individual made to adjust himself to it. That this is the reverse of the therapeutic practices in use by psychiatry will be seen in certain authoritative opinions presently to be quoted. Miss Camp's contention is made in the first place, apparently,

in complete disregard of the interests of the normal child, to whom, by reason of imitation, every stuttering child is a menace. In the second place, as we have stressed throughout this book, the very nature of this malady forces us to consider as contra-indicated methods that are based on either vocal drills or psycho-analytic adjustment procedures.

The substance of the above-recounted programs, which are samples of the only methods, so far as the writer knows, in any considerable vogue in the public schools of the country, comprises (1) an attempt to adjust the child to his school requirements, and sometimes to his home environment, and to do this in large part (2) by physiological speech drill methods in special classes outside his regular classes.

Environmental Therapy an Established Custom in Psychiatry. As contrasted with this practice, psychiatrists have long recognized the necessity of taking account of *environmental* factors in both causation and correction. Jung [17] says that it is "almost a rule among nerve-specialists to remove neurotic children, wherever possible, from the dangerous family atmosphere, and to send them among more healthful influences, where, without any medical treatment, they thrive much better than at home."

17 "Theory of Psychoanalysis," p. 52.

Glueck[18] says: "In the case of these induced neurotic reactions, it is possible to demonstrate (in contrast to the situation in the constitutionally burdened child) that the disorder had a definite onset in the career of a child formerly free from neurotic manifestations. The removal of the offending environmental situation, moreover, and the development of a proper understanding of it, remove the symptoms and sometimes serve the child as a positive and valuable bit of instruction in the business of life."

In discussing the principles to be followed in treating children whom he diagnoses as "psychically defective," and in whom he finds a "pathological alteration of the entire mentality," Jacoby[19] says, "Frequently psychopathically inferior children will be found more intelligent than other children of their own age, and therefore they are classed in a higher intellectual grade than that which accords with the normal Binet age. I have observed many such instances, and each time the question has arisen, What is to be done with these abnormal children? Notwithstanding their intellectual qualities, which frequently are even above the average, they do not belong in the public schools and still less in the auxiliary classes or schools for deficient children. Usually they

[18] *The Survey*, Nov. 15, 1923, "The Nervous Child."
[19] "Child Training as an Exact Science," p. 125.

are inordinately egoistic, mendacious, revengeful, or afflicted with criminal instincts which can be controlled only by means of proper treatment in institutions especially equipped for this purpose."

In discussing further phases of this question the same authority says:[20]

> Every neurologist will subscribe to the statement that not least of the measures which are of prophylactic value in the training of those children who attract attention on account of any peculiarity is their removal from parental control. If we consider the extraordinary significance of hereditary influence, and the fact that those unfavorable factors which during embryonal development have been the cause of injury to the health of the child frequently remain active during the entire period of its training, we often cannot but consider the retention of "atypical" children in their own homes a serious menace to their future health. No more need be said to prove that parents suffering from nervousness, and more especially those who are alcoholic, are not the proper guardians for children who are normal, and certainly, not for those who are in any way abnormal and who, through imitation, are likely to acquire morbid peculiarities, which will seriously complicate their original defective state. . . . Frequently all that is required to effect a decided improvement is the removal of the children from these surroundings, and the earlier this is brought about the greater the prospect of permanent success.

No Ground for Abandoning These Principles in the Case of Stuttering. The above authorities

[20] Ibid., p. 248.

are not quoted as endorsing explicitly the method of environmental treatment of stuttering which is advocated in this book, and which will be outlined in further detail in another connection. The truth is that even authorities like Scripture, who long ago recognized the social character of the disorder, still insist on applying a clinical method of treatment. Their opinions are here brought forward in order to establish in the mouth of several authoritative and experienced witnesses the soundness of the principle of environmental therapy, in its application to psychoneuroses in general. Once this principle has been established, it seems certain that stuttering, which is seen to take its rise in morbid attitudes toward the social environment, and which can be experimentally made to come and go by the manipulation of environing social conditions, cannot legitimately be considered an exception to its operation.

Speech Drills Are Contra-Indicated. As to present methods of treatment, all of which he says he has tried, Dr. Reed concludes [21] that nothing remains except "to condemn them one and all, absolutely and completely." As to the physiological drill methods, which even yet, if the foregoing reports can be counted representative, constitute an important part of the work being done for stutterers in the larger public school systems

[21] *Jour. Abn. Psychol.*, XVI, pp. 162–163.

of the country, he has this to say: "It may be well enough to remark here that in my opinion, the one thing to avoid in treating the stammerer, is the directing of his attention in any way whatever to his speech *per se*." [22]

In the light of the above important considerations we are now beginning to see why it is that the treatment of stuttering has so far been considered to be unsuccessful. How can any form of social sensitiveness be dealt with in disregard of social irritations? There are many forms of social irritation. To find out what these are constitutes an essential part of correct diagnosis of each case. The home with its immediate environment seems to be responsible for the beginning of the majority of cases. The school situation, the next most important influence in the lives of children, is in many respects similar to the home environment in the character of its control, is probably responsible for the fixation of the disorder and in many cases for its aggravation. But whatever may be the sources of social irritation,

[22] If one wishes to see the description of the drill methods still in use it is only necessary to consult the book, "Stammering and Its Treatment," by Samuel D. Robbins, Director of the Boston Stammerers' Institute. In a still more pretentious book, "The Cause and Cure of Speech Disorders," Dr. Greene of the National Hospital for Speech Disorders of New York seems to oppose the use of drills in his diagnostic discussions, but when one reads the description of his course of treatment it seem impossible to understand how he avoids using them. See Introduction, p. 9 of this book, where citations are made from Dr. Greene's book.

they must be found out and altered in the stutterer's behalf. To poultice an irritated foot will do no good so long as we continue to put it back into the shoe in the presence of the same protruding tack.

The Bed Must Be Fitted to Procrustes, Not Vice Versa. The choice does not lie, as some would have us believe, between the ordinary school room on the one hand, and social isolation and deprivation on the other. It does not seem necessary to deprive the deaf child of all social contacts because he, like the stutterer, is unable to meet the requirements of the ordinary school room, the work of which is, naturally, planned for children who have capacities which they do not possess. Environmental therapy cannot stop at the removal of the injurious elements in the environment, but must provide the positive beneficial influences as well. The major principle of this method, as simply stated in its application to the case of the stutterer, is that *for purposes of treatment the stutterer's environment must be made therapeutic.* We have been and in large measure are still asking ourselves how to *drill,* or how to *treat* the stutterer, in order to *cure* him of a "defect of speech." We should, rather, ask ourselves how we may environ him remedially so as to *recondition* him to his social world advantageously.

There Is No Speech Faculty to Be Drilled Specifically so as to Enable It to Function Generally. To take a stuttering child out of the class room and have him drilled a few times a week by a specialist on the abstract processes of speech, and expect this to aid him in carrying out the totally different function of meeting, through speech, the social requirements of his school work, points to a complete misunderstanding of his behavior and of the psychology of language in general. It points, moreover, to a glaring reversion to the worst crudities of faculty psychology. What would be thought of the teacher who would have children taken out of the class room in this fashion to be drilled in puzzle-solving in the expectation that this would enable them to succeed better in arithmetic?

Change in Social Relations Accounts for Much of So-Called Growing Out of Stuttering. The child is necessarily inferior in many ways to the whole big adult world with which he is thrown in constant contact. This of itself accounts in great measure for the fact that stuttering is primarily a disorder of childhood. It also accounts in large measure for the decreasing prevalence of stuttering with advancing age. What is sometimes described as "growing out of" stuttering is in reality the result of overcoming social sensitiveness by getting on a par socially with an increasing

number of associates. It is frequently found, for example, that, in passing from a lower to an upper class in school or college, a marked improvement takes place. It is not increased age *per se,* but the social confidence and successful adjustment incident to increasing maturity that brings this change about.

Social Adjustments Are Difficult for Children. Social adjustment is a far more serious problem to a child than the adult is likely to suppose. The highly emotional states that result from the first introduction into a school room or into a playground are concrete evidence that this is true. The child thrust suddenly into a new social setting may react by blushing, by retiring from scrutiny, and in the course of his attempts at adjustment, may flounder and do many things that, although seemingly anti-social in spirit, are nevertheless random attempts at getting into desirable relations with his group. Under such conditions he may cry, become angry, fight and do other illogical things. Language, being an important medium of social intercourse, betrays, in pre-eminent measure, the symptoms of the child's awkward struggles toward social adjustment. We take for granted the bumps, the falls, the flounderings, and the struggles which a child experiences in adjusting himself to the force of gravity in learning to walk, as necessary stages in the acquisition of

skill in bodily control. It is a far more difficult, and at the same time quite as necessary a task to make a successful adjustment to the pull of the social forces that play upon his personality. The difficulty of this task, it should be noted, is greatly increased by the inconsistency of the behavior of adults, who are the creators of these social forces. The pull of gravitation is constant, and may be depended upon to act in the same way at all times. The social forces of the home, to which the child is called upon to adjust himself, are by no means always the same. The father may exert one kind of social pull, the mother another; and the nurse, the governess, and others may add still other varieties. And furthermore, the father, or the mother, in one mood today, may exercise one kind of authority, whereas tomorrow, in a different mood, he or she may manifest a totally different one. The circumstances that bring about these types of authoritative control are necessarily inaccessible or else unintelligible to the child mind.

Social Adjustments Are More Important than Information. These social flounderings of children in their early life should not be thought of as mere passing phases. They are profoundly significant educationally, and are permanent in their effects. They should for this reason receive the utmost care and consideration. To children properly exposed, learning the rudiments of what

we technically call an education is a comparatively easy matter. It is a far more subtle and difficult problem to make sure that the emotional and personality sets, which are destined to direct subsequent life currents and interests, are what they should be. The difficulty of solving this latter problem is chiefly due to the fact that mental materials with which we must deal in solving it are so intangible and elusive. The child's familiarity with school subjects, on the other hand, is accessible through all sorts of tests, measurements and scales which have been developed through centuries of teaching.

It is easy to see in this intricate mass of conditioning influences that surround early childhood a veritable hotbed for the germination of characteristics which cannot but enter into the adult personality, characteristics which we have in perhaps too great a degree been taught to ascribe to the influences of heredity. Kempf says [23] that "the complex affective stream of the adult contains the conditioning influences of his past experiences, beginning with infancy. If one could make a cross-section of the adult personality towards its center of infancy, one would find, like the embedded fossils of the Pleistocene period . . . the repressed and submerged but well-constituted affective cravings of infancy and childhood sus-

[23] *Nerv. and Men. Dis. Monograph,* No. 28, p. 119.

tained in the infantile automatic tensions. One may see in many adults the symptoms of childish affective retentions in the peculiar resonance and pitch of voice, the style of words used, the bodily mannerisms, and particularly the adjustment mechanism to stressful situations which are strong enough to scatter the co-ordinations cultivated for social propriety. That we devote most of the excess energy of maturity to working out the wishes of childhood has been amply demonstrated by psychoanalysis."

In this book stuttering is considered to be primarily a malady of childhood. It is, however, recognized that there are a great number of adults who suffer from it. It is also conceivable that stuttering may be acquired in adulthood. Instances of this sort are indeed reported to have occurred among the shell-shocked soldiers of the World War. However, all of the author's cases without exception have reported that they acquired their defect during childhood. It is therefore to be assumed that, as a rule, adult stuttering is a stand-over condition dating back to the early days of childhood. For the benefit of adult stutterers who may be desirous of adopting methods of personal relief a set of practical suggestions are submitted in the Appendix.

CHAPTER VIII

ENVIRONMENTAL AND OCCUPATIONAL THERAPY

Progress Has Been Toward the Functional Interpretation of Stuttering. If one looks over the history of the attempts to deal with the problem of stuttering, one can see quite clearly that the efforts to locate its cause in the peripheral organs of speech soon failed, as did also the endeavor to assign it to organic cerebral abnormalities. Likewise we have in recent years witnessed the abandonment of the many theories that have attempted to account for it as a chronic defect of the physiological processes of speech. That it involves a general tendency toward asynergy of the entire set of musculatures concerned in the processes of speech is obvious. But that this asynergic functioning is not the basic pathology in the case, but is rather to be considered as symptomatic of other and more essentially psychic conditions underlying it, is rapidly becoming the accepted diagnosis.

Many of the psychological interpretations that have been proposed have followed somewhat the evolution of the physical and the physiological theories, in that they, as in the mental imagery theory of Bluemel and Swift, and in the traumatic-episode theory of Freud, centered attention upon certain single factors of causation, one theory emphasizing one single cause, another emphasizing a different one. Such diagnoses have made out stuttering to be something quite exceptional and unintelligible except through highly technical methods of diagnosis. Aside from the psychological objections to such diagnoses, to which attention has previously been called, their effect has been to render teachers indifferent to their responsibility toward stuttering children and consequently to drive the victims of the malady to seek relief from specialists who claim, rightly or wrongly, to have the specialized form of knowledge necessary to the understanding of it. Such specialists are able truthfully to promise little hope. The most authoritative opinion is moving away from these all too simple pictures of stuttering and are more and more thinking of it as involving all the complex processes of association, volition, and emotion of the entire personality. Stuttering as thus conceived, and having no single tap-root to be extracted or treated in isolation, turns out to be, by virtue of the nature of the

mental materials involved in it, a problem that lies within the domain of education, when education is properly conceived.

The attempt will be made in this chapter (1) to point out how the task of caring for stutterers may be considered consistent with the sound purposes of education as future students of that subject are likely to conceive them, and (2) how the school systems of the country may be enabled to utilize their resources so as to take care of the army of stutterers, who are, by the force of unavoidable circumstances, on the hands of teachers. In the succeeding chapter the principles of educational prevention will be considered.

Conditions Similar to Stuttering Are Known to Be Induced by Experience. If one can show that stuttering and similar conditions can be induced educationally, that they can be made to come and go by subjecting the victim to certain experiences, he has gone a considerable way toward establishing educational responsibility in the case. Particularly strong does this claim now appear to be, since we are beginning to think of education more and more in terms of behavior tendencies and feeling responses, and somewhat less in terms of factual information.

To cite a case of the artificial production of a condition similar to stuttering, we may refer to a report of what is called "functional dysphagia"

by Taylor.[1] This case was a young man twenty-five years of age, with a brilliant scholastic record, who complained of "violent spasms of the throat from which he suffered when drinking cold water or when bathing." Under hypnotic diagnosis this trouble was traced back to certain experiences in childhood, and to one in particular. His uncle, it seems, had told him that something was up in the tree in the yard and that it would come down and claw him. On a certain night he became very thirsty, and was afraid to go out and get water; yet, being also ashamed of being afraid, he went out, got the water, and tried to drink it but became choked. His mother had also told him that if he went down near the river a big old man would come out and claw him. Again, as a baby, a quart of water was pulled over by him, with both choking and spanking as a result. Here we have a series of traumatic experiences resulting in a definitely marked set of emotional and motor reaction tendencies. The character of these experiences and the inevitable associations set up by them determined the form of the resultant phobia. Other sorts of traumatic experiences, with other kinds of immediate response might have induced what we have called dysphemia, or stuttering, instead of dysphagia, or difficult swallowing of water, as in this case, with

[1] *Jour. Abn. Psychol.*, XVIII, 1923.

its usual "violent spasms," not of the organs of deglutition, as in Taylor's case, but of those of breathing, vocalization, and articulation.

There is in Taylor's report, one feels impelled to remark, a refreshing absence of useless descriptions of explanatory "mechanisms" couched in technicalized jargon. He remarks that the patient was successfully treated without "the use of that patient animal, the libido." That the same type of mental phenomenon has long been familiar to psychology, and that there is for this reason no need to construct a new science of psychology to explain it, may be indicated by the following citation from Titchener [2]:

> When a boy is flogged at school, he has, besides the immediate pain of the flogging, all sorts of anticipatory and subsequent stirs of organic sensations,—flutterings, sinkings, chokings, breath-catchings, nauseas. If, when he recalls the flogging in later life, the cortical excitations that underlie his memory-ideas revive the splanchnic and other excitations that constitute the stimuli to organic sensations, then the scene comes back to him with its affective coloring upon it.

Even more directly pertinent to the problem of stuttering is the case cited by McDougall [3] of a young soldier of the World War. In deference to religious convictions this young man had for

[2] "A Text-Book of Psychology," p. 493.
[3] "Outline of Abnormal Psychology, p. 278.

years repressed a tendency to use profane language. "At a trying moment of great excitement on the battlefield, he was buried by shell-explosion, and at that moment, before he lost consciousness, he uttered some violent oaths. He came to with the stutter; and it persisted up to the moment when, in hypnosis, he was induced to relive the scene and recover the lost memory of the whole incident, including the oaths; whereupon the stutter completely and finally disappeared."

Southard's studies of shell-shock revealed a considerable percentage of cases of stuttering similar to the one cited above from McDougall. His cases also yielded much more readily to treatment than does chronic stuttering. Hence a sharp distinction must be drawn between acute asynergies of this sort that are induced by a single traumatic shock and stuttering as ordinarily dealt with. The failure to make this distinction is responsible for the widespread advocacy of the Freudian traumatic-episode theory of stuttering. The most important factor to be considered in the case of acute stuttering is the shock itself, which constitutes the exciting cause. In the case of chronic stuttering, on the other hand, we must look for the major causes in the mass of accumulated emotional associations that result from the daily experiences of trying to talk. Hence we can understand why it does not seem to do any good

to probe after and attempt to remove à la Freud the effects of a supposed focalized, unitary psychic source of the disorder, so long as we leave behind these accumulated effects of daily experiences. It would not be far wrong to say that the difference between acute stuttering of the shell-shock type and chronic stuttering is quite so great as the difference between teething convulsions in a child and epilepsy. That is to say, in their genesis the two conditions are so similar as to be indistinguishable, but as maladies to be dealt with they are quite far apart.

In further substantiation of this point it must also be borne in mind that children who acquire stuttering by imitation—and this is one of the most common causes—can not be said to have dated their stuttering from traumatic shocks, such as those above described, many of which are known to have been unrelated to the functions of speech. Imitative stuttering becomes chronic stuttering when the emotional associations connected with the acquired speech inco-ordinations have become sufficiently strong to have got beyond control.

Coming back to the main topic of this chapter, namely, the educational aspects of the problem of stuttering, we must point out here that the fact that stuttering may be and is frequently the outcome of successive acts of imitation, especially

when these acts have become affected by emotional associations, goes far toward establishing the conclusion that stuttering is properly to be conceived as fundamentally an educational problem. Imitation is, surely, a phenomenon with which education has always felt obligated to deal, whatever we may be compelled to say about the present unpreparedness of educators to deal successfully with emotional experiences.

Control of Emotional Reactions Experimentally Demonstrated. That the genetic study of the emotions has become a matter of laboratory experimentation and hence is destined to become incorporated into our systems of educational thinking is well known to psychologists. Jones states[4] that at the Johns Hopkins Laboratory "Dr. John B. Watson has analyzed the process by which fears are acquired in infancy, and has shown that the conditioned reflex formula may apply to the transfer of emotional reactions from original stimuli (pain, loud noises, or loss of bodily support) to various substitute fear objects in the child's environment. This process has been further demonstrated by the author in the case of children from one to four years of age." Not only is it held that fears may be thus manipulated by artificial conditions, but they may also be removed.[5]

[4] *Jour. Exper. Psychol.*, VII, 1924.

[5] "A Laboratory Study of Fear," *Ped. Sem.*, Dec., 1924.

If such findings as the above-mentioned ones are confirmed by subsequent laboratory findings they can be considered important steps in the direction of a change in pedagogical viewpoint respecting the inclusion of emotional reactions within the domain of educational responsibility. The conception of stuttering set forth in this book, as being a phenomenon primarily of the emotional life, is therefore seen to place it within the group of natural phenomena of which educational and psychological experimentation is already beginning to take cognizance.

Neuropathic Diathesis a Predisposing Cause. While we are stressing the possibility of acquiring the reaction tendencies which are of one piece with those found to exist in the case of stuttering, we are not unaware of the importance of neuropathic diatheses as predisposing causes in many cases. At the same time we are compelled also to bear in mind that not every child with a neuropathic diathesis, on subjection to emotional strain, turns out to be a stutterer. And, furthermore, there are many cases of stuttering who show no other signs of neurosis except that of stuttering itself.

Physicians Have Helped to Change Our Conception of Stuttering. The conclusion that the problem of stuttering is to be dealt with educationally rather than clinically has been arrived at

largely through the facts afforded by medical authorities, especially in their progressive exclusion of organic factors of causation formerly thought to be present. A lay writer, Bruce, says,[6] "Even today the great majority of physicians and lay specialists—to whom by a sort of tacit agreement, the medical profession has largely relinquished the task of dealing with stammering—labor next to no purpose."

Hudson-Makuen, although he continued to hold the view that stuttering was a physiological abnormality, and that its treatment was a medical responsibility, makes this interesting comparison:[7] "The stammerer's speech is faulty in every particular. His central as well as his peripheral mechanisms are out of gear and his mental attitude toward speech is wholly wrong. The instrument is out of tune, and the player is unskilled in its use. He can not retune his instrument and if he could he would be unable to play on it."

Here we obviously have two distinct diagnostic conceptions, (1) that of an entire speech mechanism helplessly out of gear, and (2) a wrong mental attitude toward speech. It is quite possible to determine which of these constitutes the real pathology in the case, since, as we have seen in repeated instances, one and the same stutterer

[6] "Handicaps of Childhood," p. 209.
[7] *Pa. Med. Jour.*, Dec., 1909, p. 3.

may at one time be able to speak normally, whereas, by even a subtle change in his social relations and attitudes, he may be rendered unable to speak at all. If, then, the condition of being physiologically out of gear is not the real or primary pathology in the case, but is found to appear and disappear with changes in the "mental attitude toward speech," we are forced to conclude that the speech instrument of stutterers is normal, and that its malfunction is due to a state of mind which appears to be subject to some degree of control. We need not here launch into the psychology of learning in order to give due emphasis to the importance of the part played by feelings and attitudes in the acquisition of skill, though stutterers afford most interesting data bearing upon this question. Suffice it to say that if it were a question of acquiring skill in the use of the fingers we should at once take it for granted that education, not "treatment," or "cure" would be in order. How can the acquisition of vocal-motor skill be so different from any other form of motor skill as to require wholly different methods? How can we explain a policy of sending one type of motor deficiency to a hospital and the other to a school?

Educational Aspects of the Problem Have Been Long Appreciated. In discussing a paper read before the Pennsylvania Medical Society, Dr.

E. L. Kenyon outlined the following program for the solution of the problem of stuttering:[8]

> A number of years ago a way for handling the problem occurred to me and I have since seen no reason for not believing in its merit. I can think of no arrangement so peculiarly fitted to do this work as the public school. The public school has already taken up the deaf and blind and the slightly mentally defective child. It has now only to enlarge its scope a trifle and take children having defects of speech whose cure depends on a certain training which in a measure is allied in character to the regular work of the school. Suppose in the larger cities we had what might be called stammering classes under the supervision of a competent medical man. What would result? The child would go to that school at the very inception of the disorder. He could be taken to school at any age at which the first indications of stammering appeared. The result would be that the development of a fixed habit could in a large number of instances be checked. Not only that, but the child could be kept under control indefinitely. The decided tendency in children to relapse after they have recovered correct speech for a time could be handled perfectly. The very authoritative character and regularity of the school service would be important. Then, if we went one step further, it seems to me, we would have a perfect way of handling this problem. When the free patient becomes too sick to attend the dispensary he is sent to the hospital. Now, if we had in connection with these public school stammering classes institutions in which the child could live, to which selected cases could be sent, it seems to me we would have an ideal system of handling this problem

[8] *Pa. Med. Jour.*, Dec., 1909, p. 5.

in the cities. For the smaller towns state institutions would be needed as in certain parts of Europe.

Advantages of Kenyon's Plan. Dr. Kenyon's suggestion is cited here in the first place to indicate what has for many years been the trend of medical thought on this problem. The outline itself, however, is worthy of note. In the estimate of the author this plan, suggested nearly two decades ago by a physician of wide experience in this field, contains the essential features of the program to which we must come if we are to achieve any success at all with the problem of stuttering. The distinct advantages of this plan lie in the fact that it makes possible what is so distinctly and fatally lacking in the programs everywhere in vogue, namely, *environmental therapy.* Whether Dr. Kenyon had this particular principle definitely in mind when he outlined this plan cannot be said, but his system as proposed has several distinct advantages. (1) It substitutes for the haphazard, unstandardized, sporadic measures now being tried out here and there a concerted plan that measures up in its proportions to the magnitude and importance of the task. (2) In the second place it rescues the children concerned from the charlatanry of private institutions with claptrap "cures" for sale, and from the peripatetic "speech specialist" who goes about from school system to school system

taking advantage of the general ignorance of the problem and the desperate need of their victims in order to exploit them for financial gain. (3) In the third place, in spite of the demand for medical supervision, Dr. Kenyon clearly recognizes the educational character of the problem, and sees its relation to the tasks already undertaken by our school systems. (4) Finally, in recommending the isolation of these children from their school environment and, in certain instances, from their home environment, recognition is given to the social aspects of the disorder and to the necessity of utilizing environmental factors in correcting it.

A Similar Plan Advocated by Gesell. In more recent years another medical authority, Dr. Gesell, in dealing with the general subject of mental hygiene in the public school [9] says that the "development of reconstruction schools, of special classes and vacation camps for certain groups of children who need specialized treatment, such as the speech defective, psychopathic and nervous groups," should be advised. "Even our hospital type of school," says he, "in a city as large as Boston could benefit a large number of children in the course of a year. To such schools, classes and camps, children could be assigned for long or short periods, and secure a combination of medi-

[9] *Mental Hygiene,* January, 1909.

cal and educational treatment which alone is adequate to reconstruct them mentally. These provisions imply neurological and psychiatric specialists, educational psychologists and teacher nurses, co-operating as public health experts in a work of mental salvage and prophylaxis. Only by such radical and sincere methods can we ever hope to reduce the massive burden of adult insanity. Expensive in the beginning, a preventive juvenile system of mental sanitation may after all prove to be a form of socialized thrift."

Suggested Amendments to Kenyon's Plan. In spite of the recognized merits of Dr. Kenyon's plan of caring for stutterers, his discussion stops short of making clear what the program of "treatment" should be in the special classes and schools to be provided for stutterers. Upon this matter will depend the success or failure of his method. If he has conceived a program that shall lay chief emphasis, as in the past, on physiological drill methods, or any other strictly clinical methods, of treatment—and nothing to the contrary is suggested,—and if the school children are expected to mark time educationally while taking the speech "treatment," after the fashion of a patient in a hospital, Dr. Kenyon's plan is open to serious objections. However, the logic of all the foregoing diagnostic findings seems to point to the necessity, which he recognizes, of manipu-

lating the entire environment, at least in certain cases, on behalf of the stutterer. The physiologists have been telling us many years that the stutterer can talk if you teach him to breathe correctly, to vocalize in synchrony with his breathing, to co-ordinate his organs of articulation. We have noted that the therapeutic programs built upon this diagnosis have been disappointing. We do know, however, that if you provide a certain kind of social situation, certain sorts of persons (depending upon the age, the personality, and the social status of the stutterer himself) to whom the stutterer is to be called upon to speak, he can always talk normally.

The Clinical Procedure of Adjusting the Child to His Environment Must Fail. The advocates of the psychoanalytic and allied methods of handling stuttering, although appreciating in most instances the social pathology at the root of it, fail, seemingly, to give due place to environmental agencies of treatment. This fatal defect seems to inhere in the private practice of psychiatrists who endeavor to treat stuttering, and in the child guidance clinics in many centers. With the exception of bits of advice to parents and teachers, the main object of current methods of this sort seems to be to *adjust the stuttering child to his environment,* rather than to provide an environmental situation in which he can function nor-

mally until his speech processes have become properly fixed and his emotional attitude reconditioned. One or two half-hour class periods per week introduced into a regular school program, or a few private consultations with a clinician are, according to this type of diagnostic theory, expected to outweigh the effects in the stutterer's mind of all the poignant experiences which he suffers throughout the day in his struggles with recitations and general conversation. Is it any wonder that the results of such treatments have been disappointing?

San Francisco Method Good, but Is Essentially Procrustean. The methods emphasized in the Speech Correction Department of the public schools of San Francisco, as reported in a private communication by the director, Miss Edna Cotrel, seem to embody many excellent features. According to this report, they have abandoned the use of phonetic drills in dealing with stuttering. Miss Cotrel says:

> We consider, of course, that this is purely an emotional disorder, and so handle it from that point of view. Our classes are large and we have not the facilities or equipment to make case studies, and have the proper physical, emotional and mental examinations of every case. But we do the best we can, and have been able to set many on the right path. We try to reeducate the emotions, because we know that the speech defect is but a sign of an unadjusted personality. We start with relaxation exercises, explaining

to the children why this helps to drive out the fear feelings that lie at the bottom of their disorder. We make use of Watson and his studies of the beginning of fear. Then come the "stillness exercises," and the children learn how they have the power to be calm at will. Suggestion is used too, and the picture of themselves as they want to be, held until it becomes a part of the unconscious mind. Low, slow speaking is, of course, helpful, vowel reading strengthens the thought that there is nothing wrong with the speech mechanism, and helps to restore the broken rhythm, and the constant visualization of themselves in some difficult situation, acting with control, calmness and receiving the praise and applause of their classmates, builds up new mental patterns in their subconscious minds.

But all this brings little result unless the co-operation of the classroom teacher and the home is secured. The situation is explained to the teacher, and she is urged (1) not to call on the pupil to recite, but to allow him to volunteer when he is ready, (2) to give him some responsibility in the room, such as a monitorship, or to make him a group leader, or to give him some pupil to coach. Besides this, he is gently but firmly pushed into team athletics, and club work. The mother is urged to give him responsibilities at home, his own room, a weekly allowance, and never to speak about his speech at all. . . . We try to have every speech class give at least one dramatic performance during the term and it is really remarkable how well these children do, and how much this does for them in building up their confidence.

It is not necessary here to itemize the forward steps in the treatment of stuttering that are exemplified in the methods above described. The

reader will at once appreciate how closely the conception outlined by Miss Cotrel conforms to the diagnosis set forth in this book. The program of treatment in San Francisco seems to be inadequate and incomplete rather than incorrect. According to Miss Cotrel's report, 862 cases of "stammering and nervous speech disorders" were treated in 1926–1927. This work was done by seven full-time teachers and a number of part-time teachers, mostly untrained. In answer to a special inquiry as to the amount of treatment each pupil gets per week Miss Cotrel says, "We try to have at least three periods per week of one half hour for this group (stutterers, etc.). This is not always possible, as we have not enough teachers."

Now, we very much need the services of psychiatrists to impress upon us the seriousness of such psychoneuroses as stuttering, and the impossibility of remedying them by wholesale methods of this kind. It is doubtful whether even articulatory defects may be successfully handled in this way. But it is, surely, far safer to attempt to remedy, say, lisping in a child's speech by a few half-hour periods of instruction per week outside of his regular class work, since to return to his recitations does not necessarily injure, but may actually be counted on to improve his talking. The stutterer's disorder, on the other hand, is

wholly different, since its most serious excitant is the situation typified by a class room recitation.

Many Procrustean Methods Have Been Tried but Are Uniformly Found to Fail. The author wishes to plead guilty of all these errors of procrusteanism of which he is here accusing others. During the experiences of more than a decade of clinical studies it has been necessary to deal with many cases of stuttering. Naturally the thing of utmost importance to the parents of the subject as well as to the subject himself was treatment. Practically every remedy found described in the literature of the subject has been tried out with an experimental attitude and without prejudice. Not even the empirical "cures" on sale in "institutes," such as beating time, and other similar devices for distraction, have been omitted. In addition to making personal attempts to test the various remedies in use, the method of referring cases to others who employed these same remedies has been followed in many cases. Barring the many cases in which the subjects, in conformity with the stutterer's optimism, reported themselves "improved," the results of these attempts at treatment have been wholly disappointing. It is therefore necessary to conclude that something quite radical is called for in the way of a change of method. This chapter is intended to point out

that the radical measures that are indicated by the character of the disorder involve a complete reconstruction of the entire daily program of the stuttering child, so that *all,* and not merely a fractional part, of his activities may be curative. The notion that the educative process begins and ends with a class period is a crude one. It has proved itself to be ruinous when carried out with stutterers. To take the proper care of stuttering children for a maximum of an hour and a half per week, leaving them for the remaining one hundred three and a half hours (counting 9 hours per day for sleep) to meet the difficult situations in and out of school as best they can, is obviously foredoomed to failure. Children cannot thus readily throw on and off their fears and inferiority complexes. They cannot lay aside their social sensitiveness by being told to do so. They cannot on advice, however sound and sympathetic it may be, acquire adult standards of social values and be able to disregard the thoughts of others about them. They cannot put on as if it were a garment an adult philosophy of life. The author makes these assertions on the basis of repeated experiences. Within recent days a sincere attempt was made, in the absence of better methods, to "adjust" a bright, attractive, stuttering girl of adolescent age to her high-school situation. It did not relieve her to be told that her companions

admired her more than she thought, and that her self-depreciation was morbid, and should be avoided. An interview with her teacher paved the way for excusing her from recitations that were difficult for her, but she objected to being singled out in this fashion as if she were "peculiar." To be told that she could be different without being peculiar or inferior did not relieve her mind. It did not satisfy her to be told that her awkward attempts at reciting made her different anyway, and that to be excused from difficult recitations would not render her any more different from the rest of her group. With eyes filled with tears she said that she desired very much to finish high school, that she had an ambition to become a teacher, but that if she could not be like other people she could not endure to continue in school. In the case of younger children one may by the prestige of age and superior wisdom secure a sort of intellectual acceptance of such advice as this, but with them, as with the adolescent girl, the rationalizations of the adult mind are quickly overthrown by the surge of emotional reactions. The watchful care of the angels, about which the mother tells her child, is somehow insufficient in the silent spookiness of real darkness. Our sense of values and our philosophies of life are products of living, of education. They are not mental "remedies" to be adminis-

tered at widely scattered intervals in homeopathic doses.

Clinical Treatments of Stuttering Seem to Rest on a False Theory of Causation. In a preceding chapter on Theories of Causation the attempt was made to point out the fallacies underlying the Freudian traumatic episode theory of the causation of stuttering, by way of accounting for the disappointing results that have come from the application of psychoanalysis to the treatment of the disorder. It seems certain that stuttering cannot be referred to sexual episodes or to other experiences of this sort that are unrelated to the function of speech. Rather we have in it the summative effects of daily emotional struggles, which are experienced *only* in connection with the attempts at talking under socially unfavorable conditions. It is upon this latter conception that the advocacy of environmental therapy is based. The psychoanalytic or any other clinical form of treatment of stuttering can only be justified on the grounds of a traumatic episode theory of causation. Once it is established that stuttering is brought about only by abnormal modes of daily living it will follow that its treatment will require a readjustment of these modes of living, with special reference to their social aspects. The stutterer must be provided with a social milieu that is favorable, one that is provocative of nor-

mal emotional reactions, one that will give him relief from the fear which haunts him throughout the day in all situations, such as the ordinary school room, in which he expects to be required to talk under disadvantageous circumstances.

Miss Cotrel of the San Francisco schools, to whom we have already referred, and many others who have been called upon to deal practically with this problem, have come to realize that stuttering is an emotional rather than a physiological disorder. Many have also come to see that the stutterer's morbid emotional reactions take their rise in certain sorts of social situations. It does not seem to have been so generally realized, however, that the treatment implied by this diagnosis should begin with an alteration of the child's social environment that will make it possible for him to react normally until his emotional and motor habits have become safely established. We might easily have known *a priori* that to take a stutterer out of a social milieu, in which failures, humiliations and fear follow each other in unending succession, and drill, advise, "adjust," psychoanalyze, or otherwise "treat" him for a few moments per week is not calculated to bring about the reconditioning of his emotional and motor reactions requisite for a cure. If a correct understanding of the psychological characteristics of stuttering had not brought us to this conclusion,

it seems that we might have been led to apply to stuttering the principles of environmental therapy which have for so long been accepted as standard by psychiatrists in dealing with psychoneuroses of the same general character (see chapter on "Stuttering as Social Maladjustment"). At any rate by trial and error methods, which have lasted for many centuries, we have learned at last that something is radically wrong with our systems of handling this problem.

Scripture says [10] that one may "get at the root of the fear (of the stutterer) by psychoanalysis," but he holds that "this alone is not adequate, and no stutterer has ever been cured by it. The patient has a whole series of bad habits engrafted upon his fear, and he will not drop them unless he is shown how to do so." "To submit a whole class," thinks he, "to many exercises is no more rational than to dose the whole surgery with all the medicines of the dispensary indiscriminately." In the same connection he says, "If stuttering is a resistance to the human element in the environment, its location is mental, and the aim of the treatment should be to alter the mental condition."

It is, as we have noted, doubtful as to whether there may be found a single root of fear at the bottom of stuttering in all cases. But, waiving

[10] *Lancet*, 1923, vol. I, p. 750.

this objection, is it possible to imagine that a child can throw off a "whole series of bad habits" by being "shown how to do so"? Such results cannot be accomplished even where the learning involves merely motor co-ordinations. Can one *show* a child how to play the piano? Far more difficult of accomplishment would it be where subtle emotional reactions are involved, as in the case of stuttering. The psychological objections to Scripture's private dispensary of advice as a method of treatment of stuttering are wholly as great as those which he has lodged against the wholesale dispensary methods of class treatments.

Once he has concluded that the "location" of stuttering is "mental," he infers that its treatment should be to *"alter the mental condition."* True, but can one alter mental conditions by ignoring the stimuli that induce those mental conditions? Is a mental condition an abstraction, or has it always a definite relation to concrete experience? Objections have been pointed out to the old physiological treatment of stuttering through breathing and vocalization exercises on the ground that such processes were only abstracted aspects of the whole complicated function of verbal communication. It was found that a stutterer may be entirely normal so far as these acts are concerned and yet be unable to meet the requirement of speech in certain social situations.

This error of abstraction from their normal setting of the processes of speech is the same whether, like Kussmaul, Gutzmann, Hudson-Makuen and others, we choose physiological processes, or like Scripture and a host of other clinicians, we choose mental processes. A child cannot bring his "mental condition" to the clinic to be "altered," for the very cogent reason that he hasn't any such *thing* to be turned over for treatment. Under certain definite concrete situations the condition of stuttering will appear. It therefore is impossible to treat it in disregard of the situations and conditions that give rise to it.

A Complete Reconstruction of the Entire Daily Program Seems Indicated. There seems, therefore, no way of escaping the conclusion that the treatment of stuttering school children demands the reconstruction of their entire daily program, after the fashion of the special schools advocated by authorities previously quoted. Whether there should be schools set aside exclusively for stutterers, as recommended by Dr. Kenyon, or whether there should be provided "hospital schools," in which other neuropathic types besides stutterers should be cared for, as recommended by Dr. Gesell, is a question which only the experience of the future can enable us to answer. This policy should in no wise appear to be radical, since it is already in vogue in the handling

of other exceptional types such as the blind, the deaf and dumb, and in some degree the crippled children.

Objections have been raised to placing stuttering children together in groups on the ground that they would tend to imitate each other. These objections, to be sure, would apply to the special classes in which they are supposed to assemble once or twice a week as well as to the separate school accommodations here advocated. This objection does not seem to be based upon actual experience, but rather upon the expectation of what might be supposed to happen. Those who have dealt clinically with the problem of stuttering can scarcely have failed to meet with cases who have been treated and dismissed as "cured" at private "institutes for stammerers," and who have suffered the usual relapse. One often finds in these cases that they really could talk without stuttering while at the "institute" in question, and while in the atmosphere of the group of similarly afflicted persons. Once they get away their troubles begin, and the causes of these relapses are not far to seek. The merest tyro in psychology should understand that, when one undertakes to recondition a child's entire system of reaction tendencies and to habituate him to a new attitude of mind toward his social environment, one must pay the price in time and effort, and

most of all must one conform to the psychological conditions of success in bringing these profound changes about.

There Are Proofs of the Success of the Use of Environmental Method of Therapy. The two main considerations so far offered in justification of the environmental treatment of stuttering have been (1) the general psychological characteristics of the disorder, and (2) the seeming failure of methods which leave this factor out of consideration. It is well at this point to state briefly a few other considerations which have a most important bearing upon the decision of our question. These are as follows:

(1) Certain experimental findings noted in the chapter on Symptomatology (p. 193 ff.) appear to constitute a demonstration of the possibility of manipulating the social relations even of a laboratory in such fashion as to relieve or provoke stuttering at will. For example, by reading in unison with the stutterer or by forcing him to read alone, one may change him from success to failure. Thinking of himself as a stutterer trying to answer a question he may have difficulty in talking; ask him to assume a comic rôle, thus changing his social attitude, and he talks without stuttering. Evidences of this sort are in abundance.

(2) Perhaps the most important of all evidence bearing upon this point may be said to have been

derived from observation. Along with many other students of this problem the author feels compelled to acknowledge that he has been unsuccessful, in spite of many years of effort, in finding an effective *clinical* treatment of stuttering. During these years the frequent observation has been made, however, that stutterers, many of them former clinical cases, have found occupations and social situations in which they with surprising rapidity have thrown off their handicap. Several cases of this sort have been reported in Chapter VII. The change of rôle, for instance, from that of student to that of teacher has repeatedly been found to afford almost instant relief. One case, a primary teacher already mentioned (p. VII), reports that she was able during the first year of teaching to overcome her speech disorder to such an extent that her fellow teachers had not discovered that she had been a victim of anything of the sort.

Now, the principle of environmental therapy is simply an attempt to utilize this discovery. The reconstruction and the utilization of the social environment as a method of relieving stuttering is therefore consistent with the psychological characteristics of the disorder, *and at the same time it appears to be effective.*

Some Pedagogical Considerations May Be Added. The present method of keeping stutter-

ing children mixed up indiscriminately with other children is pedagogically indefensible for the following reasons:

(1) Such children are a handicap to a school room. They draw heavily upon the time and the sympathies of the teachers. They are a source of distraction, and sometimes of distress, to other pupils.

(2) By reason of the fact that imitation is a frequent source of stuttering, every stuttering child becomes a menace to every other child with whom he associates.

(3) The requirements of the ordinary class room are peculiarly calculated to aggravate the disorder. The attitude of dread of superiors, or of those in any way in authority over them, and the fear of their inability to speak when required to do so, especially when definite answers to definite questions are required, are familiar characteristics of the stutterer's mind.

(4) To hold the stuttering child to the usual requirements of recitations is no more consistent and no more humane than it would be to treat, say, a deaf child in the same way. Because the latter has a sensory handicap which renders him incapable of meeting the usual class room requirements while the former has a motor handicap is not a legitimate ground for making such a dis-

tinction between them. So far as the suffering in the two cases is concerned, the evidence goes to show the stutterer is mentally less at ease than the child who is blind. The blind child, and the deaf child, by the very character of their disorder generally become emotionally adjusted to their handicaps. Stutterers are unable to do this as a result, in the first place (a) of the intermittent character of their difficulty, and secondly, (b) on account of the fact that they are, seemingly, treated as other children. They are therefore tantalized by the hope of getting by situations without stuttering, and they do this often enough on the playground and in certain other situations not calculated to provoke stuttering to keep this hope alive.

(5) In addition to accentuating the difficulties of speech the ordinary school room places a heavy handicap on the learning processes of stuttering children, since the "law of effect" seems to operate adversely in their case. Recitations which are a reward and a pleasure to children of normal speech are to them punishments. It is therefore not to be expected that they shall maintain normality of emotional reaction, not to say anything about the interest necessary to effective learning, so long as they are forced to meet the requirements of a school program that is devised

to meet the needs of pupils who are as different from themselves as they are from children who are blind.

Principles of Occupational Therapy to Be Employed. It is to be understood that mere social isolation is not adequate for the treatment of stuttering. That is only the negative aspects of the method required. It removes the peculiarly irritating causes in the case of school children, and safeguards them against the deep fixations of emotional reaction tendencies, which, if not thus looked after, are likely to result in life-long handicaps. But more is required in the case. *It is necessary to provide activities which are remedial.* The solution of the problem as to what these activities shall be is of great importance. By almost unanimous consent speech drills are, by leading authorities on this subject, considered to be contra-indicated. They are not only not curative but injurious. Indeed, any form of drill which directs the child's attention to his processes of speech tends to make him speech conscious, and hence is likely to accentuate his most injurious mental states. This objection applies to all forms of special classes, even to those that are most carefully conducted. The empirical methods employed in "institutes for stammerers," in the way of systems of distraction, such as counting, beating time, etc., are not to be recommended as being

calculated to give permanent results, and are otherwise scientifically objectionable. What, then, can be recommended as a psychologically justifiable program of treatment?

In answer to the foregoing crucial question it should perhaps be said that it might be well completely to dismiss the notion of "cure" or "treatment" from our minds. Such ideas as these, borrowed as they are from the medical treatment of physical diseases, have seriously interfered with progress in dealing with this problem. Since it has been demonstrated to be possible so to *environ* a stuttering child as to relieve his stuttering entirely, the problem resolves itself into that of providing an environment that will be (a) remedial and at the same time (b) educationally profitable. That this is possible there seems no reason to doubt. This method is the same in principle as that of occupational therapy which is recognized as a valuable feature of medical practice everywhere. (Borrowing with discrimination is not to be condemned.) The salient feature of occupational therapy, psychologically considered, is that it is a form of treatment in which the therapeutic effects are consequences of work which is of itself worth doing. Pedagogically applied to stuttering, this would mean that properly equipped rooms or buildings should be set aside for stutterers and

for others who need similar care, that these rooms or buildings be equipped with necessary paraphernalia for the *successful teaching of all subjects required* by pupils or patients. The environment set up for these individuals should avoid all suggestions of abnormality in their case. It should, on the contrary, give the impression of being an interesting and encouraging place in which the stuttering child may find it possible to do what he is expected to do without paying a penalty for doing it. It should be a place in which he can learn things and do things without the nagging fear of being expected to be called upon to participate in programs of recitation which have been devised for children whose fluent speech is beyond him even to imagine. As was recommended so many years ago by Dr. Kenyon, a thoroughgoing environmental treatment of stuttering necessarily implies that *carte blanche* shall be given in regard to the child's entire environment. In the majority of cases, in the experience of the author, the most important portion of the child's daily program, in its effect upon stuttering, is that which he spends in the school room. Hence it is believed that to be able to reconstruct this at will may be expected to be entirely sufficient in the great majority of cases. Occasionally, however, it will be found that a child is maladjusted to his home environment. It is also fre-

quently the case that parents are unwilling or else are not sufficiently intelligent to co-operate successfully in a program of treatment. In such cases successful treatment cannot be expected without complete readjustment of the domestic as well as the educational environment. These cases must be removed from home.

In a program of treatment of this sort the subject-matter of the curriculum should be held in secondary importance in comparison with the establishment of new habits and healthier social attitudes. Fortunately in this day, when radical educational reforms like the Dalton, the Decroly, the Winnetka and similar plans of teaching are more sympathetically considered than formerly, it is possible to take considerable liberties with the day's work in the school room without sacrificing the more solid aims of education as we have come to conceive it.

It is not to be assumed that this sort of treatment of stuttering necessitates the complete neglect of motor training in speech habits. This method of handling the problem presents as a matter of fact the *only way* by which normal motor speech habits may be taught without the adverse effects of suggestion derived from the phonetic drills now still in use in some places. Fortunately there are many ways in which a stutterer may get vocal motor training, not only in

normal, concrete settings, in which his speech is apropos and not trumped up artificially, but in a way that will be educative of his emotions as well as his speech functions. Stutterers, for example, are on a par with normal children in singing. Most of them are able to play a rôle, to dramatize, and to impersonate without stuttering. A considerable proportion of stutterers can speak in public as well as a normal person, even though they are severe stutterers in conversation. These psychological characteristics of stuttering pave the way for a method that will not only afford all the necessary vocal training but will at the same time be educative in a general way. All cases of stuttering should be given at least a year of treatment of this sort; in some cases it should be continued much longer, of course, but by this plan it becomes easy to take the requisite time, since it involves no necessary loss of promotion. The child simply steps aside from his harassing environment, talks, feels and lives normally until the effects of his normal living can be relied upon to outweigh those of his previous abnormal living. The same courses of study may be followed as those carried on by other children. Only it follows of necessity that the sole test of proficiency in school work shall not be the usual oral class recitation, in which a stutterer has no chance of success no matter what his intelligence may be

and no matter how industriously he has worked. Although this method implies the abandonment of the traditional oral class recitation, it does not necessitate the loss of social stimulations derived from contact and work with other pupils, for, as we have noted, the stutterer can usually speak with normality in groups selected and arranged with a view to producing the right social attitudes.

Specific and Thorough Training Is Necessary for Carrying on This Work. It goes without saying that only well-trained persons should be called upon to undertake work of this character. The training should be of two kinds. In the first place such specialists must have a thorough understanding of the technical aspects of the subject of stuttering as a psychological phenomenon. In the second place they should be well educated in a general way, and should show the ability to vary the daily routine of teaching without loss to the pupils of the real substance of their courses. Such work demands intelligent pedagogical pioneering, and as such it requires the best of both training and ability.

Adaptation a Recognized Educational Need. Differentiation, adaptation, and individualization may almost be said to be modern educational slogans. The stutterer's case is but a conspicuous example of need of such reforms. He has both

the capacity to learn and the willingness to do the necessary work. The sole difficulty in his case, a difficulty which, by the way, other types of pupils sometimes have, is the result of our attempting to force upon him a pedagogical method which is the product of ages of experience with pupils wholly different from himself. Some types of pupils are injured by one aspect of mass-method teaching, others are injured by another. The stutterer happens to be a type that is most affected by the mass methods employed in the congregate, oral form of recitation. Sutherland of Los Angeles says [11] that "public education is not keeping pace with the proved outcome of research in this field. Mass methods are still in use, although they have been shown to be not only unintelligent, because impossible of specific direction, but actually brutalizing in their effect upon both pupil and teacher."

But Pleas for Such Reforms Do Not Seem to Be Made on Behalf of Stutterers. In view of the multiplicity of theories concerning causation and treatment of stuttering, and in view of the jangling claims about professional rights in the case, it is not surprising that educationalists seem inclined to overlook the case of the stutterer. That they *are* so inclined is easy to show. For instance, the Twenty-Fourth Yearbook of the National So-

[11] "Year Book Nat'l. Soc. of Ed.," 1925, p. 2.

ciety for the Study of Education, Part II, is devoted to the subject, "Adapting the Schools to Individual Differences." Whipple, the editor, says of this volume that it is a "real challenge to the schoolmen of this country," and so it seems unquestionably to be. In the first contribution Sutherland says that "the progress of our day in the science of education is nowhere more evident than in the field of individual differences. Here is clear recognition of the fact that it is the individual child who is to become the citizen, the leader, or the criminal, the public charge; and that both the material and spiritual values of the age will depend in large measure upon the habits and attitudes set up in the schools on the part of each individual child." Still more pertinently, so far as the stutterer's case is concerned, he says, "We are slowly emerging from the 'patent medicine age' in education, during which, without attempting to discover the exact nature of a given difficulty, we prescribed one single remedy, by topic and page, to cure all ills."

Sutherland attempts in his discussion to enumerate and to plead the cause of all types of variants, but for some reason he leaves stuttering children completely out of consideration. Los Angeles, to be sure, is doing something for stuttering children. A report of the speech correction classes for the month ending April 30, 1926, gives

a total of 520 stuttering boys and girls who are receiving treatment. Wholly aside from the inherent defects of this sort of system of dealing with stuttering, to which attention has already been called, it seems strange that Sutherland and his co-editors are found to reverse their policy of *"adapting the schools to individual differences" when it comes to the question of dealing with stutterers.* Quite evidently they do not feel that this principle applies to stuttering children. These unfortunate variants from the hypothetical norm are seemingly not to play any part in the "challenging" program of working out an educational system that will be scientifically adapted to human needs. It is, so far as these authors seem to say, quite all right to take the stuttering child out of the class room, tamper with his case once or twice a week in a "speech correction class" and send him back into the class room which remains unaltered so far as his needs are concerned.

Stutterers Are the Orphan Children of the School System. It seems fair to assume that the minds of the schoolmen who would be likely to be called upon by the Society for the Study of Education to investigate and report on a topic of this character are representative of the minds of educational authorities throughout the country. Hence the charge is made that stuttering

children are the orphans of the school systems of the country. There is no need to pile up evidence of the justice of this charge, but in order that we may balance what has been pointed out in a western school situation by citing an example of a similar state of mind in the East, one may refer to the interesting and, withal, "challenging" little book by Irwin and Marks, "Fitting the School to the Child." Here again the title looks promising for the stutterer, but when one goes through it and finds an intelligent and sympathetic consideration of almost every type of variant childhood to which the schools need to be fitted except the stutterer, his expectations are disappointed. The dull normal, the neurotic, the gifted, and those needing physical treatment and counsel have chapters devoted to the consideration of their needs. Consideration is given even to less serious types of variation, such as timid children, persistently naughty children, also the pugnacious, the stubborn, the suspicious, the emotionally retarded, the supersensitive, the self-conscious, the excitable, the taciturn, etc. The authors of this book, as did the authors of the Twenty-Fourth Yearbook, went so far as to designate the very group to which, by every evidence, stutterers must be considered to belong, without giving their case any consideration whatever. They say, for instance (p. 180), that "perhaps the most distinctive as-

pect of the school experiment [12] was the formation of special classes for neurotic children." By neurotic children they mean "children who, for some reason other than intelligence, do not get on in the group to which they belong by reason of their intelligence." There is certainly no dispute about the claim that stuttering children are neurotic. If the authors mean here children who are unable to get on in their group by reason of being antisocial then stutterers would not be legitimately included. If, however, they mean to include those children who, by reason of morbid social attitudes are unable to *meet the requirements of group behavior,* then stutterers would certainly have to be included. And yet, in spite of this classification of the very group to which stutterers belong, they are given no consideration in this valuable experiment, so far as one can judge from the book. That there is no scarcity of stuttering children in New York City needs no proof. A former director of Speech Improvement [13] claimed that in 1919 there were about 8,000 stutterers in that city. This number is probably much below the correct estimate.

The Problem of Stuttering Children Should Be Assumed by Teaching Specialists. In spite of

[12] The book is a report of an experiment carried on over a series of years in Public School Number 64, New York City.

[13] Dr. Frederick Martin, *Quar. Jour. Speech Educ.*, 1919, v. V, no. 3.

the tendency to dismiss the stuttering child from educational consideration once he has been discovered, and to turn his case over to others who have unfortunately proved their inability to deal successfully with his difficulty, he is still to be found as a rule among the school population. Hence in the main we see beyond any doubt that the alternative possibilities are not those of the teacher versus some other profession, but rather is it a question as to whether trained or untrained teachers shall be called upon to meet his needs, the methods of short-time treatments, cures, remedies, etc., having been shown by evidence piled on evidence to be inapplicable. Of other children the school system asks only that they have the capacity to learn and that they be disposed to do the necessary work. Of the stuttering child it exacts a third requirement, namely, that he be educated by a method which is wholly at variance with his peculiar requirements. We insist that he be educated by methods that have been developed in the teaching, through centuries, of children of normal speech. If he fails to meet these requirements he has to take it as a personal misfortune, for, with all our claims about "fitting the school to the child," "adapting the school to individual differences," etc., we have not yet progressed to the point of considering the stutterer's failure under these conditions to be charge-

able to the miscarriage of teaching in their case.

The Learning Processes of Stutterers Are Hindered by Mental Attitudes. The poignancy of suffering which a stutterer undergoes in his attempts to recite robs him of normal motivations and lowers the efficiency of his learning. To suffer an emotional excitement of an intense sort, and a physiological disturbance that is extreme, in the act of reciting is a serious handicap to education. Hence, wholly aside from the existence of stuttering as a speech disorder, one may say that if there could be found an appreciable number of children who, by reason of a peculiar emotional make-up, reverse the usual order of pleasure-pain response, so that when attempting to do as they are bidden they are made to suffer instead of deriving pleasure, it would at once be seen that special provision would have to be made in their case in order to avoid educational disaster. Such considerations are no less weighty in the case of the stutterer because he happens to have, in addition to this peculiar emotional reaction tendency, a motor handicap that is of serious consequences.

There Is Need of Research and of Training Centers for Teachers. In view of the fact that the case of the stuttering child is in process of being abandoned by physicians, that stutterers

are still largely at the mercy of private, commercial institutions with empirical remedies for sale, and since his case is neither understood nor provided for by teachers, it seems urgently necessary that centers of investigation be provided with resources adequate to meet this issue in a way that will remove the discredit of our present inefficiency and neglect. Dr. Kenyon said many years ago [14] that there was no place in the United States where one could go to acquire a thorough knowledge of this subject. The author is of the opinion that nothing has been done since this utterance was made to invalidate its applicability to the present situation. Frequent inquiries from teachers, school officials and others addressed to those who have interested themselves in the matter are calculated to convince one that, in spite of our great educational and humanitarian advances, this particular need has not been met. The director of one of the most widely known child-welfare research stations in the United States in recent months referred an inquiry of this sort to the author, with the confession that he had no such information to give! That there should be, must be, such an authoritative source of information and training should surely need no urging. If one could point to a physical disease which is known to afflict hundreds of thousands of per-

[14] *Pa. Med. Jour.*, Dec., 1909.

sons, and concerning which there is still very little authoritative information, the sun would scarcely set again before philanthropists and philanthropic organizations would be ready to consider the building and the endowment of laboratories for the investigation of it. So far as stuttering is concerned we have not even become impatient with our condition of inefficiency on the one hand and the commercialized, empirical guessing on the other. On the stutterer the charlatan is permitted to perpetrate all of the injustices of patent-medicine principles without hindrance.

It is hoped that this book has brought forward evidence sufficient to establish the validity of the claims of environmental and occupational therapy as the correct method of meeting the problem of stuttering children in school. At least it is hoped that by now we see the error of the method, seemingly everywhere in vogue, of taking the foot out of the shoe, poulticing it and putting it back in the presence of the same protruding tack. This chapter has dealt exclusively with the *principles* underlying this method. The *details* of the method are yet to be worked out. How to arrange daily programs for stuttering children of all ages which will be therapeutic and at the same time at least as profitable educationally as the programs which they are to be called upon to abandon, is a problem which calls for careful and competent

research. That provisions should be made for the thorough investigation of this problem under suitable auspices is a conclusion that is too obvious to need emphasis. One may be assured from past experiences that the results of such a piece of research will redound to the good not only of the stuttering child but to that of the normal child as well. It would in truth open up in a concrete way the whole field of the preventive aspects of mental hygiene, concerning which so much is being said, but concerning which so little is being accomplished.

CHAPTER IX

EDUCATIONAL PROPHYLAXIS

It is agreed on all sides that it is far easier to prevent than it is to cure stuttering. It is further established that the chances for cure decrease with age. The older method of treatment required that the patient be sufficiently mature to feel the seriousness of his handicap, so that he may be willing to co-operate in the prescribed program of treatment. This is obviously a serious defect of procedure, since it involves the fixation, through painful experiences of the very abnormality the relief of which is being sought. Every time a stuttering child suffers embarrassment through inability to talk he lessens his chances of recovery. The method outlined in the preceding chapter is intended to provide the means of escaping these consequences. It does not require that the patient be punished into a due appreciation of the seriousness of his handicap in order that he may be willing to pay the price in the way of exertion and self-control exacted of him by

current methods of treatment, which after all can in honesty promise but little hope of success. It requires merely that when a child manifests the symptoms of stuttering he be removed from the principal source of irritation of his disorder, which is generally the traditional class recitation, and be provided with a situation adapted to his needs. In this new situation he is called upon to do things which are (1) possible for him to do without punishment, (2) which are of themselves worth doing, and (3) which are curative in their effect upon his speech difficulty. His actions become in this way adequately motivated without running the risk of converting what may at its inception be a remediable difficulty into a hopelessly irremediable one.

The Stutterer's Educational Needs Are Not Peculiar. The fact that we have found it necessary to prescribe a means of escape from the hurtful influences of the classroom for the stutterer seems to indicate that, whatever else we may be endeavoring to accomplish through education, mental health cannot as yet be included among our aims. The truth of the matter is we have no single major aim. There have always been and still are conflicting opinions as to what should constitute the chief objective of the educative process. Matthew Arnold's conception of education as the knowledge of all that has been said and done in

the world's history is countered by the brilliant remark of Ellen Key that education consists of that which is left over after we have forgotten all that we have learned. The theory that the aim of education is mental discipline, or general improvement of the intelligence, is opposed on the psychological ground that it presupposes the presence in the human mind of certain general mental faculties for the existence of which proof is lacking. The degree of intelligence which a person may have, we are now being told, is a quantity which is determined by hereditary causes, and is unalterable through educational agencies.

What we should attempt to do in education is determined in part by what is possible of achievement. It is still assumed that if we begin early enough with a human mind mental health can be considered as possible of achievement. Then why not mental health as a major objective? Is not healthiness of mind, as broadly and fundamentally conceived, a sort of life equipment, which, if one possesses, he will find all other necessary things added thereto?

Knowledge of Mental Health Lags Behind Knowledge of Physical Health. The average citizen is today able to understand the nature and general causes of the common physical diseases, and is able through this knowledge to safeguard himself and family and to co-operate in safeguard-

ing the community from them. This same average citizen, however, may be counted upon to be quite unfamiliar with both the symptoms and the causes of mental disorders. It is still not at all difficult for mental healing quackeries to thrive even among intelligent people. The concept of mental causation is not only not understood as yet, but is even challenged. To this lack of public understanding and of co-operation is probably due the unfavorable situation in which we find ourselves respecting the question of mental hygiene in the country as a whole. It is probably not even known by the average citizen that there are more beds in the hospitals for mental diseases than there are beds in the hospitals for all other diseases combined. It is also probably not generally known that, whereas tuberculosis has been cut down 50% in the registration states since registration began, mental diseases have increased from 81.6 per 100,000 population in 1880 to 229.6 in 1918. This disparity of showing is usually ascribed to the lack of successful preventive measures in combating mental diseases. So long as it was the custom to wait until hemorrhages and physical depletion had occurred tuberculosis, or "consumption," was regarded as an incurable malady. It was only after it became possible to detect its earlier stages that efforts were rewarded by the encouraging results now

being achieved. Mental disorders are still not usually detected until it is too late to do anything more than send the patient to the hospital for safekeeping. Not until we have progressed to the point of being able to detect the earlier symptoms and thus to ward off their insidious growth will it be possible to show progress in the control of mental disorders similar to that which we are now able to report in connection with physical diseases.

The School Should Be Made the Chief Prophylactic Agency. It seems to be unanimously agreed that the one great agency to which society must look for the working out of programs of prevention is the school. But it will be many years before teachers will be capable of co-operating successfully in any program of prevention of mental diseases. It is also probably true that the average physician is not much better off in this regard than the average teacher. Specific training with this definite aim, namely, mental health, in mind is essential to success.

The extent of educational responsibility in this general field of mental hygiene is obviously determined by the relative prevalence of mental disorders that can be classified as wholly or partially psychogenic. As to the proportion of such disorders Sir Maurice Craig says[1] that "there are

[1] *Mental Hygiene,* VII, 1923.

types of insanity which, like some physical diseases, are intrinsically part of the organism, and for which, with our present knowledge, little can be done either to prevent or to remedy. Fortunately these form by far the smaller group, whereas the larger includes the many that result from nerve exhaustion and emotional states. Therefore it must be to the latter that attention should be first directed on account both of the number of cases and of the greater possibility of prophylactic measures."

Out of 68,983 first admissions into 61 state hospitals for the insane Treadway finds [2] that structural brain changes are responsible for the mental condition in only 37.46% of the cases. Cabot makes the striking statement [3] that "half of any general practitioner's ordinary work is concerned with some type of psychoneurosis; not half that the neurologists do, but half that all of the doctors in the country are doing today, is to treat psychoneurotics." According to this the field of mental health embraces at least half of the entire field of hygiene. The preventive side of the work in this field is yet to be developed. The school systems of the country must play an even greater part in the working out of the principles of mental prophylaxis than they have played in estab-

[2] *Amer. Jour. Pub. Health*, November, 1923.
[3] *Layman's Handbook of Medicine*, p. 231.

lishment of methods of prevention of physical diseases. Childhood has been called the golden age for the guarantee of mental hygiene. The increase in the prevalence of mental diseases, as contrasted with the encouraging decrease of many physical diseases, seems to indicate that as yet we have not begun to utilize our schools as agencies of prevention; we have not appropriated the golden opportunity. Many educators and hygienists are seeing this deficiency, and a process of creating public sentiment is going on which will undoubtedly be fruitful of important results.[4]

Not only do we find the public schools being charged with an increasing responsibility in this matter, but higher educational institutions as well are being called upon to share this responsibility. Dr. Macfie Campbell says [5] that even though our universities should allow their students to face the problems of life after an education which gives them no thorough insight into their natures, they should at least "give the teachers sufficient insight into the subtle structure of the child's mind to enable them to realize the importance of their problem."

Children should at least be as safe mentally as they are physically in school. Indeed, since nec-

[4] *Mental Hygiene*, vols. III and V.
[5] *Mental Hygiene*, April, 1909.

essarily education deals primarily with the minds of children, something more than mere safety may legitimately be expected. There should be, and will be, a new science of *orthopsychics,* which will make it possible to attempt to straighten out the abnormal mental and emotional "sets" of children's minds as the orthopedists now are able to straighten out their distorted limbs. The principles of this new science must be worked out, as they have been worked out in orthopedics, on plastic materials.

The Stutterer Is a Case in Point. Regarding the application of prophylactic measures to stuttering Brill says[6] that "perhaps more important than treatment is prophylaxis. . . . A thorough study of the environments, that is, the behavior of the parents toward the child, and bringing the child in contact with other children should usually remove the difficulty. . . . But one must be very careful not to impress the child that he has a malady and thus cause self-consciousness, which is hard to eliminate."

Stuttering, being simply one form of psychoneurosis, affords at least one of the many varieties of problems in mental health. And it may be assumed that the successful handling of this single concrete problem will afford an encouraging demonstration of what may be accomplished

[6] *Jour. Speech Education,* April, 1923, p. 134.

in the field of mental hygiene as a whole, and at the same time it will contribute an important item toward the impending task of reconstructing our educational philosophy.

Prophylaxis Seeks to Remove Causes. Prophylaxis may be considered to include two phases. In the first place, it implies the early recognition of a disorder, so that measures of relief may be taken which will have a maximum chance of success. In the second place, as its very name indicates, it implies the removal of causes. The preceding chapter of this book dealt with the principles of treatment that are to be applied to stuttering once it has been recognized. In this chapter it is intended to point out certain readjustments of educational aims which may be expected to lessen the liability of stuttering and other forms of psychoneurosis either to have their origin in or to be aggravated by the processes of class room. It is understood at the outset that this discussion can deal only with fundamental educational problems and not with detailed methods. Moreover, while these general readjustments are advocated as prophylactic measures to be adopted on behalf of stutterers in school, they are all worthy of adoption aside from their relation to this particular form of psychoneurosis. The following are some of the needed educational readjustments:

(1) Due Consideration Must Be Given to the Emotional Side of Mental Life. Irwin and Marks, authors of that valuable study, "Fitting the School to the Child," in discussing the benefits of a general sort that are likely to come from the special study of neurotic children, say (p. 186) that "the ultimate benefit should accrue to the far greater number of normal children who are now brought up on a school curriculum which is addressed to disembodied intellects regardless of their emotional or instinctive life."

The thorough understanding and the careful handling of the emotional life of children would probably bring about ultimately one of the most important educational reforms ever accomplished. So long as education is conceived as having as its purpose the imparting of knowledge derived from the study of certain prescribed text books, just so long will its methods tend to be routine, ritualistic, and inelastically formal. Guided by this sort of aim we will constantly drift more and more toward treating the quantitative aspects of all school subjects, and toward treating them in such fashion as to make it possible to state the results of our instruction in quantitative form. It is easy to ascertain the percentage of facts which a child may be able to recall after learning, and to report such percentages to the proper officials for their all-important files. It is not so

easy to find out the permanent residual effects in the way of interest, attitude, and set of mind, which are the real products of education.

One of two things seems certain, namely, either we have never seriously assumed the task of "fitting the school to the child," and are consciously or unconsciously tolerating the disadvantages of institutionalism, or else, with a sort of medieval distrust of the instincts and feelings, and an equally medieval tendency to apotheosize the intellect, we are disposed to consider the cognitive processes alone to be of educational significance. This we do in spite of the fact that the great cultural products of civilization make their appeal primarily to the feelings rather than to the intellect. Theoretically one may say that it would be possible for a student to pass through an entire college course, and that too with highest honors, without experiencing any of the emotional reactions which are the *raison d'être* of all the cultural subjects in the curriculum, provided he is able to absorb and to repeat on examination the factual aspects of the subjects studied. Knowledge or proof at the end of a series of steps is characteristic of reasoning rather than of aesthetic experiences.[7]

The habit of setting the feeling processes over

[7] Lipps, Theodor., "Psychological Studies," tr. by Sanborn, pp. 138 ff.

against the thought processes as if they were essentially antagonistic grows out of the failure to distinguish the subtler aspects of affective experiences from the grosser and more disturbing emotions. A man's emotions may, to be sure, color his thoughts. They may, indeed, determine his conclusions, and in a great percentage of cases, if we credit the Freudians, they do thus affect his conclusions. But such antagonisms between reason and emotion are not inherent in their nature. On the contrary do we not at once recognize them as signs of mental maladjustments, and consequently as being pathological? Is not thought reinforced in ordinary experiences far more frequently than it is obstructed by feeling tones? To test this question out one needs only to set himself to memorizing a series of nonsense syllables, so as to see how his thinking becomes affected when it is difficult to arouse an interest in the subject-matter. Interest, we remember, is an attitude of mind, a feeling of the subtler sort, which admittedly plays an important part in our cognitive life. Interest, it is important to note, is now being considered by educators to be not merely the driving force or motivation for the securing of knowledge, but rather as the goal of knowledge. McMurry[8] says: "The common un-

[8] Quoted by Bolton in "Everyday Psychology for Teachers," p. 157.

derstanding has been that instruction is aiming at knowledge, and interest is one of the means by which that aim can best be attained; in brief, knowledge is the end and interest is the means. But the new standpoint asserts interest to be the highest aim of instruction, and ideas to be the means by which that object can be reached; that is, interest is the end and knowledge is the means. Thus the tables have been turned."

The conclusion, therefore, is that feelings may affect our thinking advantageously or disadvantageously; they may act destructively or constructively. Whether they shall turn out to be the one or the other kind of influence in the life of any child is dependent in part at least upon the educational influences that have been brought to bear upon his life. Once the correctness of this statement becomes accepted there is no further ground for doubt as to educational responsibility in the case.

This question of the educational significance of emotional reactions is of peculiar importance to those who are interested in the problem of stuttering. All children exhibit an emotional reaction to speech which it is sometimes difficult for the adult mind to appreciate. Whether man's first speech was ejaculatory and emotional or not cannot in the nature of the case be settled. It is true, however, that the speech of a child is much more

highly toned emotionally than it is in the case of the adult. This holds true also of speech as *heard* by a child. To call a child a bad name affects him seriously. Words are more real and more potent for good or for ill to a child than to an adult. On the other hand a young child will experience a great deal of pleasure from saying over and over again "funny" words, neologisms, etc. To be laughed at on account of a peculiarity of speech is correspondingly detrimental to a child in early years. This is the time at which emotionally charged associations become fixed, sometimes for life. In this way the lisping child frequently turns out to be a stutterer.

It must be borne in mind that the emotional abnormality associated with stuttering is specific in character in that it is (1) of the nature of a morbid *social* reaction, and (2) in that it does not arise in every type of social situation, but only in those in which the stutterer is called upon to respond to a *certain kind of social demand through the medium of speech.* As we have noted elsewhere a difference in social relations between the stutterer and his auditors or a subtle shift of emotional attitude may, when realized, change normal speech into abnormal and vice versa.

Stuttering Is Not Merely General Nervousness. Parents of stuttering children are frequently told by those who have not made the subject a matter

of specific study that stuttering is due to nervousness. The practice of prescribing sedatives is not unknown. It is not to be denied that stuttering children are as a rule nervous. But to dismiss the problem of stuttering by placing it under this vague, general heading is to lose sight of three important considerations:

(1) Nervous instability may or may not result in stuttering.

(2) Moreover, many stutterers in speaking under circumstances well calculated to excite the emotions do not stutter at all. Many stutterers are known to be able to swear or quarrel fluently when suddenly provoked to anger. Under the excitement of speaking to a large audience many stutterers become eloquent speakers. Canon Kingsley was an orator in the pulpit but a severe stutterer in conversation. Bishop Brooks doubtless cured himself of stuttering by speaking in public (another case of vocational therapy). It is, surely, reasonable to assume that when one is before an audience, and is expected to speak there is an inevitable heightening of nerve tension. Hence we must conclude that it is not nervousness *per se,* but a specifically conditioned form of nervous reaction which is associated with stuttering.

(3) Hence it becomes necessary to conclude further that the general condition of "nervousness" which is sometimes noted in the case of stutterers

is to be thought of rather as the summative effect of previous emotional experiences than as the sole causal factor. Certain it is that every embarrassing experience which a child may have in speaking under certain social conditions will tend to set up in his mind emotional dispositions conditioned with respect to these situations, so that when he finds himself again in the midst of these social situations the stuttering will be likely to recur. Suppose, for example, that a normal person, one who could not justly be accused of "nervousness," were to be subjected to a disagreeable electric shock whenever he tried to swallow water. In the course of a few repetitions of this experience we should find the victim exhibiting symptoms of "nervousness" whenever it became necessary for him to drink water. That this is something more than a speculative assumption may be appreciated by reference to Taylor's case of dysphagia described in the preceding chapter (p. 270 ff.).

Neuropathic Diathesis, Not Stuttering *Per Se*, Is Inheritable. The question has often been raised as to whether stuttering is hereditary. Many cases of stuttering in the direct hereditary line of other stutterers have been recorded. But, so far as the author has been able to find, there has never been a case of this kind from which all other factors of possible causation have been ex-

cluded. Suppose, for example, a stutterer is found whose son also stutters. Knowing the tendency of a child both consciously and unconsciously to imitate the mannerisms of his parents, how can one say that such a case is inherited and not acquired? In order really to prove the inheritability of stuttering it would be necessary to find a stutterer who came from a family of stutterers, but who has never in his earlier years associated with the members of his own family or with other persons who stuttered. And even this would obviously not be conclusive proof unless one could exclude all other forms of pathogenic experiences other than imitation.

It seems necessary, however, to say that heredity plays a part of some importance, in that through this medium one must account for predispositions, which may afford a favorable background out of which stuttering may take its rise. Neuropathic diathesis, emotional instability, excitability, "nervousness" are predisposing causes. These causes are by no means always found to eventuate in stuttering, but may manifest themselves in many other ways.

Emotional Reactions Determine Mental Health. Besides being related in an important way to the processes of learning in children, the feelings and emotions are related in an equally fundamental way to their mental health. Regarding the causes

of neurosis, of which stuttering, we remember, is a species, Bleuler says [9] this:

> Over exertion and exhaustion certainly are only rarely causes of neuroses, and never of psychoses. . . . A general decline of strength is no neurosis. People who toil hardest, who with a few hours of sleep and that frequently interrupted through attention to the children, regularly do a day's work of 16 or more hours, year in and year out, only exceptionally become neurasthenic, and the (pseudo-) neurasthenics who come to the doctor have in most cases worked less than he. What usually produces so-called neurasthenia are affective difficulties.

The part which the school room is now playing in the determination of emotional reaction tendencies is being more and more appreciated. Glueck says [10] that "the child's school life gives rise to other events, which may lead to profound neurotic manifestations. The class room is—among other things—the arena to (in?) which to a very large extent the child tests himself in the game of life." Peck is of the opinion [11] that our educational systems are not in position to know the effects of the application of the principles of modern psychopathology for the reason that these principles have never been applied in prophylaxis. "The present educational system,"

[9] "Textbook of Psychiatry," p. 556.
[10] *The Survey*, Nov. 15, 1923.
[11] *Boston Med. and Sur. Jour.*, July 12, 1923.

says he, "informs the individual on all possible subjects, with the exception of himself. There is something ludicrous and tragic in this omission." Realizing the significance of this educational situation, the International Conference of Women Physicians, meeting in New York City in 1920 passed the following pertinent resolution: "Resolved, that we, as medical women, place ourselves on record in support of a movement to make all schools and colleges responsible for the emotional and instinctive needs of children and young people, to the end that education may become an instrument for teaching the best social adjustment possible."

To produce out of the raw materials of childhood human beings who, after their school days are over, are able to face life and society courageously, happily and successfully is, surely, no superficial aim for education to set before itself. That this is not the present aim of education the stutterer stands out as one among a multitude of other witnesses. His case happens to be much more conspicuous than some others, but it may not be more serious than many. However, if it were our purpose in the school room completely to undo the stutterer's mind, and to distort beyond remedy his emotional life, we could scarcely do so more effectively than we are now doing by subjecting him to the exactions of school require-

ments that make his daily life one of dread, of cringing self-distrust, and embarrassment.

Many books like "Instinct and the Unconscious" by Rivers, and the still more recent "Locomotive God" by Professor Leonard, have impressed upon our minds the significance of the early emotional experiences of children in relation to both the physical and the mental health of adulthood. But in so far as we are dealing with emotions in school as mere accidental by-products of the all-important intellect-processes of factual learning, these discoveries in the field of psychiatry have not been appropriated. If it is possible, as these recent studies have pointed out, for a childhood experience to linger through many years in the background of one's memories and to crop out under the stress of unusual conditions so as completely to overthrow the individual's mind and destroy his efficiency, we must surely regard all emotional responses in the school lives of children as being of more than trifling significance.

How foreign to the general interests of education we are accustomed to consider the emotional life of a child to be is strikingly indicated in a discussion by the Presseys in their treatment [12] of paranoia. This disorder is known to be characterized by "feeling tone of suspicions," by sys-

[12] "Mental Abnormality and Deficiency," p. 174.

tematized delusional trends, and by relatively slight mental deterioration. It is, however, classified as irrecoverable. These authors point out that "the case of true paranoia is . . . likely to show a good school record." And yet, going on with their description, they add that the individual is likely not to have shown entirely healthy social relations. He is found to have been conceited, egotistical, self-centered, and very suspicious. Indeed his psychosis is but the exaggeration of symptoms manifested early in life. Yet, in spite of all these emotional reaction tendencies he is "likely to show a good school record." One is justified in wondering what is meant by a "good school record" if this sort of history can be thus designated. Does it mean that we must see to it that the child shall absorb the content of the curriculum, even though he may manifest meanwhile emotional morbidities which may terminate in an irrecoverable psychosis?

(2) The Efferent, Expressive Side of Education Must Be Duly Stressed. The afferent, or in-take, processes of mental life received new emphasis when the ancient doctrine of innate ideas became challenged in the Essay Concerning Human Understanding by Locke in 1690. His dictum was that the mind was a clean sheet, and that the process of education must accordingly be merely the recording of sense impressions upon this sheet, and

the organization of the residual effects of these impressions into systems. This point of view marked a radical departure from the educational philosophy of the Greeks, who exalted reason above the senses in its relation to mental development. From Locke to the present time there has been a succession of educational reformers who have been disposed to stress the importance of the in-take processes in their relation to mental growth. The idea of general discipline has been challenged, and the content courses of the curriculum have in a great measure taken the place of the cultural courses. The elective system of education has served further to increase the stress on subject-matter and hence on the afferent side of education.

The central or thought processes have in more remote periods of history, and the in-take or afferent processes have in more recent time received in their turn the chief emphasis of educational attention. It is possible that we may have just ahead of us a period in which the third step in the reflex circuit of life shall be given chief emphasis. If human life may be epitomized as consisting essentially of receiving impressions, organizing these impressions and acting on them, we may be warranted in saying that any scheme of education that overbalances either one of these functions to the exclusion or to the detriment of

the others is likely to result in mental distortions. The educational psychology that confines itself exclusively to the laws of learning, of acquisition, of mental in-take, is not calculated to lay an adequate foundation for education as broadly conceived. Certainly is such a mutilation of the process of education not calculated to render it more hygienic. Only those who have dealt with mental abnormalities can appreciate the significance of the lack of normal outlets of interests and emotional trends. The old adage that it is not what goes into the mouth that defiles but what goes out may be paraphrased, *mutatis mutandis,* with regard to what goes in and out of the head in education.

The child is mentally extrojective rather than absorptive. He is extrovertive normally, rather than deliberative. Only the years can bring the philosophic mind, as Wordsworth puts it. The world is to the normal-minded child full of a number of things, things that provoke overt responses. It is not a place of ideas that stimulate mere meditations. There are indications that in recognition of these facts a readjustment of educational objectives is taking place, with a shift of emphasis from the accumulation of knowledge to the modification of behavior. Bolton[13] says that "it has been said that education should not have for

[13] "Everyday Psychology for Teachers," p. 101.

its end to teach men to know what they do not know, but to teach men to behave as they do not behave."

Speech, since it is the most important efferent, expressive process involved in human education, must if we balance the life processes while we teach, be given a place of paramount importance. The stutterer is again a witness to the fact that this balance has not been successfully maintained. He suffers in the extreme from the morbid fears and inhibitions with which his processes of speech are attended in the prosecution of his school duties. But he is not the only victim of unhygienic conditions. In fact the very exigencies of school-room discipline make normal vocal activities almost impossible. But to relieve this situation there is being provided in increasing numbers of school systems a method of instruction which makes possible normal, spontaneous expression of articulate speech among children. The multiplication of manual activities in which vocal expression is not forbidden is to be commended. It is this form of increased emphasis on speech rather than the older systems of elocution to which we must turn for meeting the requirements of scientific prophylaxis.

APPENDIX

WRITTEN FOR THE BENEFIT OF ADULT STUTTERERS

This book has been written with the conviction that it is high time for us to get away from the commercialized methods of administering "cures" of one sort or another to stutterers and with the further conviction that in order to do this successfully it is necessary to enlist the machinery of the school system and all of the health agencies attached thereto, with the additional stipulation that the objective of health shall be made to include mental as well as physical health. It seems certain that only by bringing to bear upon the case of the stuttering child during the plastic years of school life such agencies as these can a successful program against this disorder be inaugurated. This is the author's apology for saying so little thus far concerning the adult stutterer.

There are, it is realized, a great number of persons who have suffered throughout their school

years and who have awakened to the full realization of the seriousness of their handicap only after they have come to meet the responsibilities of maturity. That such individuals as these are in need of consideration is fully appreciated, and the author is in every way disposed to accord this consideration. Since this book is not written as even in part an advertising scheme published in the interest of a system which the author desires to make known, it is possible at least to be frank, whether it is possible to remove stuttering or not. Frankness requires the recognition of the great difficulty of relieving stuttering in adults. As between a writer like Robbins who says[1] that between 90% and 99% of stutterers can be cured, and Scripture, who thinks that stuttering should be counted an irrecoverable malady,[2] the latter is probably nearer the truth, in so far as the adult stutterer is concerned. But this author takes neither the view of Robbins nor that of Scripture. He is of the opinion that efforts for the relief of stuttering are worth while so long as the individual continues to be sufficiently plastic mentally to be able to acquire new knowledge, new attitudes and new forms of skilled actions. Just when the mind loses its elasticity to the extent of being incapable of making the new adjustments

[1] "Stammering and Its Treatment," p. 14.
[2] *Lancet*, 1923 and 1924.

requisite for the relief of stuttering cannot be definitely indicated, for there is of course a wide range of individual differences in these matters. Certain it is, however, that, like tuberculosis, stuttering, if treated in time, is to be counted remediable, but, also like tuberculosis, if left to make its inroads, becomes increasingly difficult to relieve.

The Principle of Environmental and Occupational Therapy Holds for Adults. The conclusion of the author's study of this question is that the treatment of stuttering, to be successful, requires in the main the two following things: (1) In the first place it is necessary to remove the stutterer from, or else remove from the stutterer, the irritating causes in his social milieu. Reasons for the necessity for this step have been given previously and do not need to be repeated here. (2) In the second place, provision must be made for speaking in a way that is most easy for the stutterer. This does not mean trumped-up speaking of an artificial sort, nor does it mean artificial elocutionary drills, nor any other form of phonetic exercises. Rather it must be normally motivated speaking in situations similar to those to which it is necessary for the stutterer to adjust himself if he is ever to acquire normal speech. These two principles have been followed in outlining in previous chapters the program for taking care of stuttering children in

school. How can such principles be worked out for the adult stutterer who may not be in school?

Before coming to answer the question just proposed it is well to state that the following of these principles in whole or in part may be counted as responsible for cures that have been assigned to other causes. The author has for some years held [3] that the common remark that children will "grow out" of stuttering is erroneous. That a considerable percentage of stutterers gradually cease to stutter as they become older is quite true. But the cessation of stuttering is not a mere incident of growth. What has happened in such cases is that the advance in years has brought about a gradual change in social relationships on the one hand, and on the other hand there has been going on a battle for self-mastery. The one change has brought about gradually a new social milieu, while the other has, in the successful instances, afforded opportunity for speaking, which, *pari passu* with the alteration of social relationships, has become progressively easier. The unsuccessful cases on the other hand are those who, for one reason or another, have been unable to tip the scale of social relationships to their own advantage, and hence have continued to suffer from the sense of social inferiority, social subserviency, or social

[3] *Jour. Amer. Med. Association,* LXVI, 1916, pp. 1079–1080. Cf. also Chapter VII of this book.

helplessness, which was the dominant feeling tone of their childhood. Such individuals may also be presumed to have failed to find curative occupations, types of jobs in which they could speak with, for them, maximum ease. With the disadvantage of both an unrelieved socially irritating situation, and the constant, daily necessity of speaking under hampering conditions, stuttering persists and becomes chronic and ultimately irremediable. Hence we have the adult stutterer.

The only sound program of self cure for the adult stutterer must involve the selection of an occupation which will involve the minimum of social excitants of stuttering, and at the same time the maximum of the kind of talking which he has found by experience to be easiest for him. Since stuttering is in the main a conditioned form of reaction tendency the determination of what is difficult for one stutterer may not necessarily always hold good for another. Contrary to the opinion of Dr. Greene,[4] the author regards teaching, especially the teaching of younger persons as perhaps the most helpful and curative occupation that a stutterer may seek. Reports have already been given of the surprisingly beneficial effects of this sort of work on some of the former clinical patients of the author. Of course only those stutterers—and there are many of them—whose stut-

[4] "Cause and Cure of Speech Disorders," p. 162.

tering ceases in the class-room should use this sort of therapy on themselves, for if a teacher stutters in the presence of pupils they will be subject to the dangers of imitation.

Many stutterers find it easy to speak before audiences or juries. In these cases, provided they can survive the ravages of the school rooms in which they are forced to secure their preparation, there is no reason why they may not aspire to be lawyers, ministers, lecturers, or public speakers as the case may be. Once they have found it possible to launch into their work, the chances are that, if they have not become too firmly set, they will accomplish what, if it happened to occur in a child, would be called "growing out" of stuttering.

Besides the professional types of occupation there are many other forms of business undertakings, which a correct "job analysis" might reveal to be serviceable to this end. It may be understood that it is not necessary that the individual shall continue in all cases to pursue his "therapeutic occupation" the rest of his life unless he chooses to do so. But even at the cost of a break in his life plans a stutterer may well afford to follow such an occupation for a length of time sufficient to bring about the desired results. Just what length of time will be required in each case is obviously indeterminable. This method of

providing a curative environment plus curative modes of living would not sound the least strange to us if we were speaking of physical health. It should not sound any more strange to us when we have reference to mental health, for in each case we are dealing with the unsuccessful attempts of an organism to adjust itself to a set of environing conditions. The only difference is that in one case the organism is a physical one whereas in the other it is a mental one. The truth is that even in the treatment of mental disorders of certain sorts the standard procedure involves the alteration of environing conditions. Somehow an exception—unjustified in the opinion of the author—has been made in the case of stuttering.

The alternative to these recommendations to the adult stutterer of becoming a recluse, of withdrawing from society, and of seeking occupations and conditions in which no speaking at all is required, though adopted by many stutterers who have reached the point of despair, is not to be recommended. Besides the fact that such a course involves the loss of the advantages of the kind of training most needed by the stutterer, a decision of this kind is mentally unwholesome in a general way. The method of escape, of fugue, or flight from unpleasant realities, leads to other morbidities and sometimes to mental regression. The stutterer must at all cost adopt a plan of living

that will lead him in the direction of mental health.

The author does not believe that any adult stutterer has ever been permanently cured of his disorder by institutional or clinical "treatments" alone in disregard of disadvantageous environmental conditions. On the other hand many have worked their way gradually toward complete recovery, without any such "treatments" by finding the type of occupation which required the kind of speaking which was relatively easy for them, and by continuing at this occupation for a period of years. Indeed, it would be safe to say that adult stutterers recover in this way or not at all. As a rule people, including stutterers themselves, are about as vague concerning the causes and cures of stuttering as they are concerning the causes and cures of bad colds. They generally focus on a single element in a complex group of factors and thus lose the correct perspective on the case. Not even concerning the use of patent medicines can one find more *post-hoc-ergo-propter-hoc* reasoning than can be found concerning "remedies" for stuttering. It is upon this fact that the charlatan depends for his financial success. Unfortunately for the stutterer there are few who can save him from charlatanry of this sort. We fear and safeguard ourselves against those who would prey upon the bodies

of our children, but we are not so intelligently solicitous regarding those who would prey upon their minds.

Some General Rules on Mental Habits Are Desirable. Besides the specific directions as to a plan of procedure for the stutterer to follow in order to set himself on the road to recovery, there are certain things which should be mentioned as secondary aids in the process of mental reconstruction. If it be true, as we believe, that in stuttering we are dealing with a complex and not a simple phenomenon, it follows that any plan of campaign against it, to be successful, must be worked out in recognition of this fact.

(1) In the first place the stutterer should seek some reliable source of knowledge concerning the real nature of his difficulty in order that his campaign against it may be an intelligent one and not a process of blind groping. If he thinks that he has a difficulty which is basically physical or physiological and continues to apply remedies that are in accordance with this diagnosis, neglecting meanwhile his mental and emotional reactions and their social provocatives, all that he may do will, if the history of the treatment of stuttering may be considered to be good evidence, be likely to make bad matters worse.

One point of supreme importance which he should learn concerning the nature of his trouble

is that it is not something for which he is likely ever to find a remedy, ready made, that will do the work of curing while he waits. There are a good many practitioners in this field of human suffering who offer to sell such remedies, but who have become quite skilled in offering explanations as to why their remedies fail to work in any particular case. Dr. Greene, who has an institution for the treatment of speech disorders, says [5] with commendable frankness that "results (of treatments) rest largely with the patient himself, depending upon his sincerity, perseverance, and real desire to be cured, although the severity of the case and his general condition are also factors to be considered."

Everyone who has worked with stutterers is likely to have noticed that, although they claim to desire to the point of poignancy to be cured, saying often that their lives are almost intolerable, they exhibit an inability to persevere in the application of simple remedies or expedients suggested or prescribed to them by their friends or advisers. Many theorists, especially those of Freudian turn of mind, have found in this attitude a justification for considering stuttering to be a form of unconsciously devised concealment of repressions, or else a mode of escape similar to what is supposed to manifest itself in certain

[5] "Cause and Cure of Speech Disorders," p. 134.

forms of epilepsy. This theory implies that the stutterer does not really (that is, *subconsciously*) desire to get rid of his defect. The author finds no need for such explanatory hypotheses. It seems, on the contrary, to be possible to account for the stutterer's lack of readiness to try out the variety of remedies prescribed for him as the result of former trials and failures in the use of similar remedies. The adult stutterer, by reason of numerous suggestions proffered by interested friends, is likely to have such a store of memories related to his speech troubles that it is difficult to suggest to him anything that is wholly new. Hence it is most likely that his evident lack of faith is in reality due to the recall of previous efforts and failures. He feels that he better than his advisers can predict what will be likely to happen on the adoption of the new proposal.

We have emphasized throughout this book that speech, by which we mean, not the artificialized or abstracted processes of articulation, with which the speech specialist deals, but speech as a complex mental reaction to a concrete social situation, expressing itself in vocal-motor responses, is always *ad hoc*. The act of speech in the complete sense of the word is therefore impossible in isolation from a practical situation to which it is indissolubly related. The *situation,* that is to say, is, to speak mathematically, a *function* of vocal

communication. This important fact has been urged in justification of the advocacy of the treatment of stuttering children by the method of environmental and vocational therapy, which has been described in preceding chapters. It is here reiterated in explanation of the seeming indifference or inability of stutterers to attempt the use of remedies prescribed for them when they find themselves in actual concrete situations that necessitate speaking. In such situations all of the memorized rules of talking, even when they have been intellectually accepted in good faith, are likely to take flight from their minds. Those who are familiar with the characteristics of psychasthenia know that a psychasthenic individual may have a normal aversion for an act of theft, of incendiarism, or of suicide when contemplating such acts in isolation from their normal settings. And yet, when the spell of the deed has been brought on by concrete provocations, they fall victims to the thought of the acts, and the very horror of the deeds themselves adds to the liability of their enactment.

(2) The chief problem, therefore, in the stutterer's attainment of self-mastery is that of discovering and of fostering within himself certain mental and emotional states which are (a) known to affect his speaking favorably, and (b) which he finds it possible to maintain under the stress of

actual speaking conditions. The author has known a stutterer, a salesman for a large manufacturing concern, who reported that he was on the road to recovery from severe stuttering as a result of finding that he talked better when in a laughing humor. On making this discovery he consciously strove to cultivate this humor, and with very happy results. The empirical mind might have seized upon this finding and have wrought out and marketed a secret "laughing cure" for stuttering, but, though similarly discovered and similarly unscientific "cures" have been and are being sold, this one is not, so far as is known, on the market.

As we have pointed out previously, the stutterer has a distinct aversion for appearing to be different from other people. The intermittence of his disorder enables him in a considerable percentage of cases to meet situations without stuttering. This keeps his hope alive that he may be able to do so the next time and the next. To give himself away when there is a chance of passing off as normal is something which he feels disposed to avoid. The very thought of being a stutterer hangs like a pall over the mind constantly, and the slightest hope of getting out from under this pall is instantly and vigorously seized. This attitude of mind is unwholesome and it is well for the stutterer to attempt to avoid its consequences.

Repressions and acts of concealment do not diminish, but on the contrary tend to accentuate the force of an emotion. There is an old adage which says that the way to get rid of the embarrassments of poverty is to acknowledge it. The adoption of this rule is worth consideration by the stutterer. At any rate he should endeavor to practice looking at himself objectively in order to see in what way and to what extent he may be able to vary his mode of reacting toward people. He should, while acting as his own patient, forget for the while the vocal aspects of his speech reactions and center his attention upon the emotional aspects. Those who attempt to advise the stutterer are quite apt to induce him to do the contrary of this. The author has no desire to condemn in sweeping fashion the use of phonetic devices such as vocalization, or rather vowelization, rhythmic speaking, intonation, and other means, especially if they serve to distract the stutterer's attention from himself until he can break up his tonic cramp and get his speech processes going. It is only when these subsidiary devices are exalted to the position of major importance in therapeutic principles that they must be condemned. The stutterer must be persuaded to look at his speech as a complex, synthetic process, and he must realize that in contrast with normal speech his own is probably much more an

emotional than it is a vocal response. If he can control advantageously the emotional aspects of his speech reactions the other items in talking are likely to take care of themselves.

(3) The morbid attitudes and emotional dispositions which afflict the stutterer are of many varieties. Whether he is inherently introvertive is open to question. Jung does not seem to think that anyone is. The introvertive and extrovertive personalities are to him not distinct natural varieties of human beings but rather developed types.[6] This is all that we can safely assume in regard to stutterers. They are not to be considered as built according to any fixed pattern. Efforts so to characterize them have uniformly failed. But, like others, stutterers through the influence of certain modes of reaction will develop certain more or less constant types of behavior. Repeated painful experiences resulting from social contacts will inevitably tend to turn the stutterer's mind in upon himself, so that when he anticipates meeting another person his first thought is, what will that person think of me when the meeting is over? He feels keenly the scrutiny and the gaze of others. It would be practically impossible for him to reverse this process, to forget himself and to think only of how the other person is going to impress him. Now, to get together a

[6] Psychological Types.

group of stutterers and explain to them the pathological character of such reactions upon their part will not suffice to end them. If such were possible stuttering would be easy to remedy, and we might be morally justified in advertising hospital and clinical treatments in short courses. But while the realization of the morbidity of some of his reaction tendencies will by no means be sufficient to remove the stutterer's disorder, it will nevertheless constitute a step in the understanding of the nature of his trouble, and by this fact aid in the formulation of an intelligent plan of relief.

(4) In the same way we may evaluate other supposed temperamental characteristics of stutterers. Whether, for instance, we may say that the stutterer is a schizoid is likewise open to question. Nevertheless it remains true that through painful experiences repeated for years he is likely to become dissatisfied with life and with things in general. The successful business man is apt to be conservative, satisfied with the *status quo,* in other words, syntonic, rather than schizoid. The unsuccessful one, on the other hand, is likely to be dissatisfied with the *status quo,* and to favor reforms and changes, that is, he is likely to be schizoid. With the stutterer as with the business man temperamental characteristics are the outcome of pleasant or unpleasant consequences of their respective lines of endeavor.

(5) Among the other abnormal phases of the stutterer's total reactions fear must be mentioned. This form of his emotional reaction may, indeed, be considered the *fons et origo mali* in his case. The stutterer seems to feel that to stutter is not simply a case of malfunction, but a personal disgrace, the humiliation of which he makes supreme efforts to avoid. He does not always so clearly understand, however, that his fear and the exertions which he employs in the attempts to suppress his stuttering are the chief influences in the causation of his trouble. Now, fear is, normally, a state of mind associated with the anticipation of pain. So long, therefore, as there is the possibility of suffering pain, just so long must the normal mind be subject to the experience of fear. To talk about the possibility of "removing," or "casting out" fear by some kind of treatment[7] is misleading and unwarranted. The best that can be done for a stutterer in this matter is to attempt as far as possible to alleviate his fears by readjusting his sense of values concerning his handicap. He should be allowed to make the acquaintance of the goodly company of immortals who, like himself, were stutterers, so that at least he may disabuse his mind of any notion of disgrace attached to his malady. In the second place

[7] Cf. the Freudian school, and also Greene in "Cause and Cure of Speech Disorders," p. 131.

the author feels pragmatically justified in urging the stutterer to read Coué, Bernheim, Baudouin and other reputable exponents of suggestive therapeutics. He should study the James-Lange theory of the emotions in order to be able to appreciate the relation of emotional expression to the substance of emotion itself. Let him by autosuggestion or other means, fair or foul, seek to overcome, even though by degrees, his morbid fear of speaking. So long as he suffers from anticipatory fears just so long will his speech be volitional, strained, abnormal, as contrasted with the easy and relatively automatic processes of normal speech.

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